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INDUSTRIAL MEDICINE

Industrial Health, Occupational Diseases and Traumatic Surgery

September, 1943

Absence Due to Sickness
— Analysis of the Factors Involved —

Unusual Findings
— In Pre-Employment Examinations —

History in the Making
— Industrial Medicine in the Terms of Now —

Contact Dermatitis
— With Special Reference to Industrial Dermatitis —

Ankle Sprains
— Incidence, Treatment, Diagnosis, and Lost Time Incurred —

Tuberculosis Case Finding
— Problems in Industry —

Industrial Injuries
— Methods of Management —

Menstrual Exercises
— Absenteeism Decrease and Work Efficiency Increase —

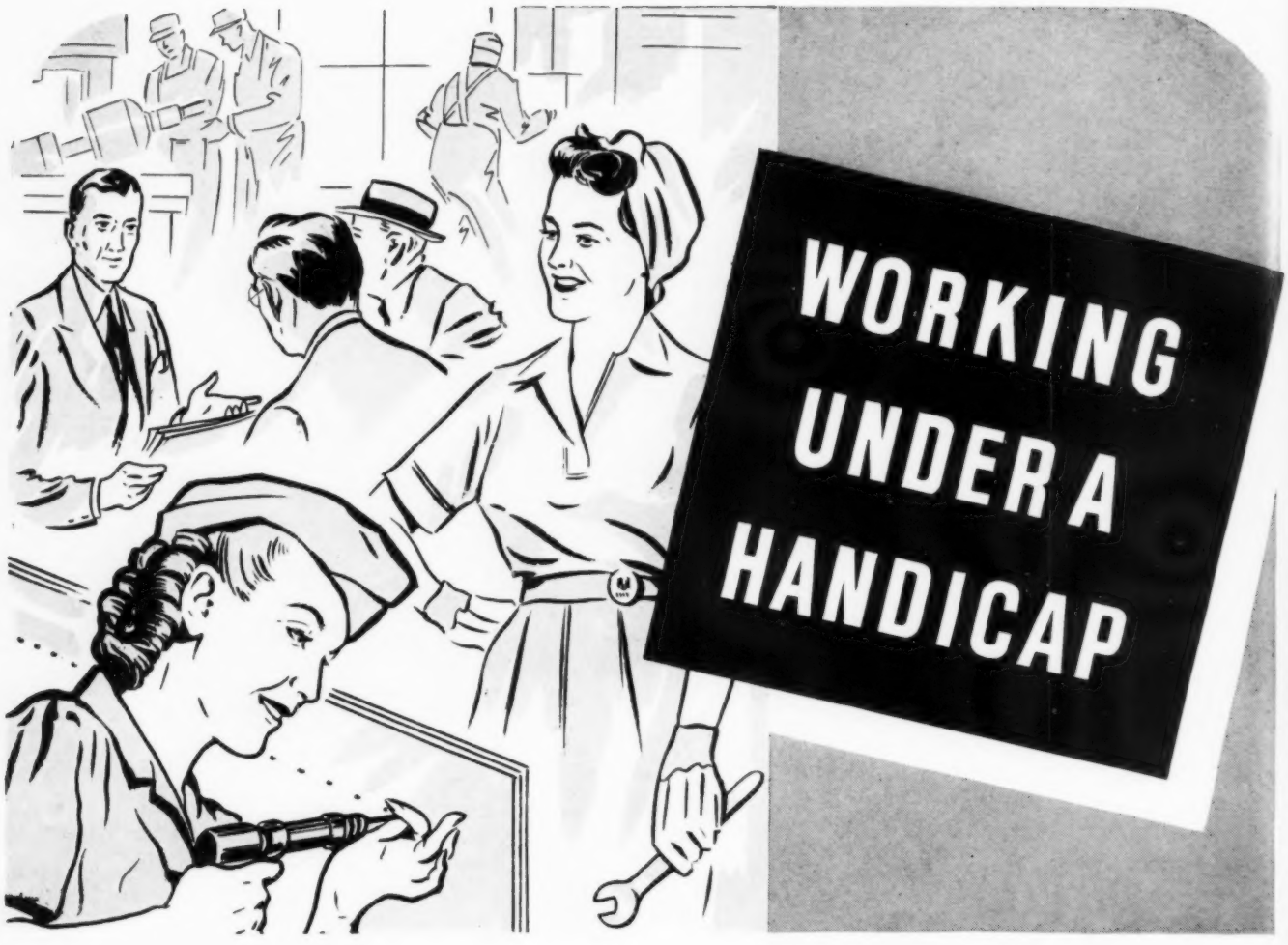
Oral Prophylaxis
— Against Upper Respiratory Infections —

Health Conservation
— In Industrial Establishments of the War Department —

Emergency Sickness
— And Immediate Care —

External Trauma and Peptic Ulcer
— Analysis of Their Relationship —

Volume 12 Number 9



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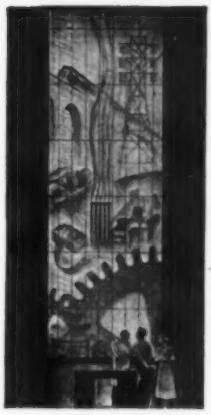

INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

Industrial Medicine | Volume 12 | SEPTEMBER, 1943 | Number 9 | Industrial Medicine

This Month

HISTORY in the Making 569
—Industrial Medicine in the Terms of Now
ABSENCE Due to Sickness ..... *Dan L. Lynch, M.D., F.A.C.S.* 575
—Analysis of the Factors Involved
UNUSUAL Findings ..... *Wendell S. Keate, M.D.* 582
—In Pre-Employment Examinations
CONTACT Dermatitis ..... *Nelson Paul Anderson, M.D.* 584
—With Special Reference to Industrial Dermatitis
ANKLE Sprains ..... *Ralph H. Bohnsack, M.D.* 588
—Incidence, Treatment, Diagnosis, and Lost Time Incurred
(With *Jerome E. Andes, M.D., Ph.D., F.A.C.P.*)
MENSTRUAL Exercises ..... *A. C. Dick, M.D.* 588
—Absenteeism Decrease and Work Efficiency Increase
(With *Lieut. H. E. Billig, Jr.*, and *Mrs. H. N. Macy, R.N.*)
ORAL Prophylaxis ..... *Thomas B. Herron, M.D.* 590
—Against Upper Respiratory Infections
EDITORIAL 596
HEALTH Conservation .... *Lieut. Colonel W. J. McConnell, M.C., U.S.A.* 600
—In Industrial Establishments of the War Department
TUBERCULOSIS Case Finding ..... *Julie E. Miale, R.N.* 602
—Problems in Industry
EMERGENCY Sickness ..... *Harvey Bartle, M.D.* 606
—And Immediate Care
POST-GRADUATE Industrial Medicine 612
—Long Island College of Medicine's Second Course
EXTERNAL Trauma and Peptic Ulcer ... *Royal H. Fowler, M.D., F.A.C.S.* 614
—Analysis of Their Relationship
NUTRITION ..... Book Review by *Erich Sachs, M.D.* 632
(The Science of Nutrition, by *H. C. Sherman*)
INDUSTRIAL HEALTH and DISEASE:
Hydrofluoric Burns 634
Management of Industrial Injuries 634
The Birth of an Industrial Health Service 640
Penicillin 642

PERSONAL News ..... 8 GENERAL News 14
COMMENT and OPINION 26

Next Month

DISLOCATIONS of the Knee ..... *Wm. R. Cubbins, M.D., F.A.C.S.*
—Diagnosis and Treatment
THE PLANT Physician ..... *Christopher Leggo, M.D.*
—And the Safety Engineer
PRURITIS Ani ..... *R. H. Aldrich, M.D.*
—And Absenteeism
DESIGNS for Health Departments ..... *Wayne L. Ritter, M.D.*
—In Small Plants

FROM OUT of the voluminous and widely scattered repositories of its facts, the history of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS is beginning to emerge on a double basis—the chronology of its progress, and the personalities that left their strong impressions on the events the chronology sets forth. Lest it be thought that the opening portion of this history as it will appear in these pages inaugurates the chronicle by presenting the last chapter first (page 569), it may be said that this recital concerning the present Officers and Directors is merely the beginning of the story of the A.A.I.P. & S. *from now on.* Twenty-five years hence it will not be as difficult to learn about this group as it now is to gather the same information about the similar group of 1918. These small pictures of the men who will guide the Association, however, have another and more important significance—implicit in who they are, their identifications with industrial medicine, their experiences in the numerous and varied circumstances of its practice, and their respective qualifications for places in its leadership. It is to be regretted that their histories must be briefed here. But that is only for the time; it is planned to present them one by one in later issues, so that the place of each in the permanent history of industrial medicine may be secure against the background of his own special contributions to its remarkable development . . . AMONG all the many studies of absenteeism which attempt to throw light on its causes, none is comparable to the fine analysis by DR. LYNCH (page 575). His studies, carefully and cumulatively developed, and hence authentic, are given here, brought up-to-date from his presentation at the Rochester "War Conference" in May.... DR. KEATE'S "Unusual Findings" (page 582) are not as extensive as he would like, but they have a timely value that will be useful to many, and a gripping

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THIS MONTH

Alba Pharmaceutical Division 43
Creamalin Tablets
Alkalol Company, The 634
Alkalol
Aloe, A. S., Company 50
Tarbonis Cream
American Optical Company 629
Safety Goggles
Anacin Company, The 619
Anacin
Anglo-French Laboratories, Inc. 4
Hepvisc
Bard-Parker Company, Inc. 13
Rib-Back Blades
Becton, Dickinson & Co. 46
B-D Syringes
Bovinine Company, The 21
Hematinic Plastules
Bristol-Myers Company 643
Sal Hepatica
Burdick Corporation, The 15
Burdick "Solarium Shower"
Cambridge Instrument Co., Inc. 32
Electrocardiograph
Carbisulphoil Company 33
Foille—for Burns
Cereal Institute, Inc. 29
Cereal Foods
Ciba Pharmaceutical Products ..... 4th Cover
Trasentine
Cole Chemical Company 18
Caloe Ointment
Denver Chemical Mfg. Company, The 42
Galatest
Desitin Chemical Company 34
Desitin Ointment
Dixie Cup Company 27
Dixie Cups
Dome Chemicals, Inc. 20
Domeboro Taps
Effervescent Products, Inc. 48
Clinitest
Fidelity Medical Supply Co. 24
Stericide
Flint, Eaton & Company 28
Sulfonamide
Frosst, Charles E., & Co., Inc. 41
Sulfamul
Gebauer Chemical Company, The 630
Gebauer's Tannic Spray
General Electric X-Ray Corporation 599
G-E Standards
Hanovia Chemical & Mfg. Co. 35
Hanovia's "Lighthouse"
Hart Drug Corporation 26
Pharmaceutical Products
Health Cigar Co., Inc. 14
Sano Cigarettes
Holland-Rantos Company, Inc. 617
"The Koromex Set Complete"
Hynson, Westcott & Dunning, Inc. 626
Pharmaceuticals
Industrial Medicine Book Company 630
"The Mind of the Injured Man"
Irwin, Neisler & Co. 618
Osmopak
Johnson & Johnson 1
Plaster-of-Paris Bandages
Johnson & Johnson 598
Adaptic
Johnson & Johnson 613
Red Cross Plaster
Jones Medical Laboratories, Inc. 633
Neo-Film
Lederle Laboratories, Inc. 635
Army & Navy "E"
Leeming, Thos., & Co., Inc. 601
Magmasil
Lilly, Eli, and Company 52
"Integrity"
Machlett Laboratories, Inc. 605
X-ray Tubes
McNeil Laboratories ..... 2nd Cover
Tablets Aspirocal
Merck & Co., Inc. 49
Sulfanilamide Products
Merck & Co., Inc. 637
Cuprex
Merrell, The Wm. S., Company 611
Oravax
Merrell, The Wm. S., Company 627
Cepacol
Mine Safety Appliances Company 623
Fend
National Drug Company 614
"Common Cold Vatox"
National Oil Products Co. 9
Skin Cleansers
Newskin Company 603
New-Skin
New York Pharmaceutical Company 633
Hayden's Viburnum Compound
Norwich Pharmacal Company 22
Unguentine
Numotizine, Inc. 16
Numotizine
Nutrition Research Laboratories 44, 45
Ertron
Nutrition Research Laboratories 641
Bezon
Ortho Products, Inc. 595
Hexital
Ortho Products, Inc. 607
Ortho-Gynol
Packwood, G. H., Manufacturing Co. 10
Pax Hand Cleanser
Parke, Davis & Company 5
Phemerol Solution
Patch, The E. L., Company 24
Gadoment
Patterson Screen Company 40
X-Ray Screens
Pelton & Crane Co., The 632
Pelton Sterilizers
Petrogalar Laboratories, Inc. 621
Petrogalar
Picker X-Ray Corporation 2
X-Ray Equipment
Powers X-Ray Service 36
Rapid Chest X-Rays
Reed & Carnrick 615
Trophonine X
Reynolds, R. J. Tobacco Company 38, 39
Camel Cigarettes
Schering & Glatz, Inc. 631
Anusol
Schoonmaker Laboratories, Inc. 18
V-E-M
Searle, G. D., & Co. 609
Metamucil
Sharp & Dohme 11
"Vacagen"
Sharp & Dohme 47
Sulfamerazine
Sherman Laboratories 23
Shervac Oral Vaccine
Squibb, E. R., & Sons 597
Sulmefrin
Stearns, Frederick, & Company 6, 7
Neo-Synephrine Sulfathiazolate
Stearns, Frederick, & Company 31
Neo-Synephrine Hydrochloride
Stearns, Frederick, & Company 51
Fergon
Strasenburgh, R. J., Co. 30
Strasco Vitamins
Tailby-Nason Company 622
Supertah
Trautman, J. E., Associates, Inc. 25
Vitalert
Wallace & Tiernan Products, Inc. 37
Azochloramid
Wander Company, The 639
Ovaltine
West Disinfecting Company 19
Service to Industry
White Laboratories, Inc. ..... 3rd Cover
Vitamin A and D Ointment
Whittaker Laboratories, Inc. 12
Cooper Creme
Willson Products Incorporated 624
Dust Sampling Apparatus
Winthrop Chemical Company, Inc. 17
Betaplexin
Wyeth, John, & Brother, Inc. 625
Elixir B-Plex

interest that will be appreciated by all. . . . DR. ANDERSON (page 584) is Secretary of the A.M.A. Section on Dermatology and Syphilology. Apropos of his article "Contact Dermatitis," he writes: "Physicians in industry, as well as physicians in general have long been baffled, if not actually misled, by such terms as allergy, sensitivity and hypersensitivity. These terms have been widely used in the discussion of contact dermatitis, and in such a manner as to imply that, *ipso facto*, they automatically explained the underlying process. In this paper a different point of view is stressed as to the actual nature of so-called allergic contact dermatitis. Regardless of one's ideas as to the correctness of the generally accepted views on the causation of contact dermatitis, it is felt that this presentation of a practically neglected viewpoint may prove to be both stimulating and profitable" . . . . DR. BOHNSACK and his associates, in their "Ankle Sprains" (page 588) contribute a survey of a reasonably large number of one of the ailments that cause considerable lost time. The ankle sprains are treated by the ordinary procedures used in the past. The authors say: "We are going to compare these data (which are very accurate) with those obtained when the joint is injected with a local anesthetic." Plants not having tabulations of their own will find this survey exceedingly useful. . . . THE articles by DR. DICK and his associates which have been appearing in INDUSTRIAL MEDICINE lately express a high appreciation of the preventive side of industrial medicine, and a fine enterprise in its specific applications. Their "Menstrual Exercises" (page 588) is further eloquent of the preventive philosophy, and in a very timely and important expression. . . . DR. HERRON'S "Oral Prophylaxis" (page 590) is an important addition to the growing literature on the use of oral vaccine tablets in the prevention of colds—extremely interesting in its expression of the modern trend that everything that might be helpful is worth trying, and in the growing evidence that such things tried are increasingly successful. . . . LT. COL. MCCONNELL'S "Health Conservation" (page 600) was a feature of the Sixth Annual Meeting of the NATIONAL CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS at Rochester in May. . . . JULIE MIALE'S "Tuberculosis Case Finding" (page 602) is interesting and persuasive in

—*Continued on page 594.*

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PERSONAL

DR. J. M. L. JENSEN, formerly assistant chief surgeon of the Rock Island Lines, has been commissioned a lieutenant, senior grade, and has gone on duty at Navy Pier, Chicago. A graduate of Marquette University Medical School, class of '31, Lieut. Jensen was appointed to his railroad post in May, 1936, following extensive post-graduate study at Copenhagen and Vienna.

DR. VICTOR C. MYERS, Assistant Surgeon (R), who was formerly on loan to the Oklahoma Department of Health, has resigned from the Service to accept a position on the staff of the Bureau of Industrial Hygiene, Michigan Department of Health.

DR. A. LOUIS WOLFE, Surgeon (R), formerly assigned to the Division of Industrial Hygiene, New York State Department of Labor, has resigned from the Service. DR. NATHAN MILLMAN, Assistant Surgeon (R), has been transferred from the Missouri State Board of Health to take the place of DR. WOLFE.

AT THE request of the Texas State Board of Health, DR. LOUIS SCHWARTZ visited many plants throughout the state to investigate problems of dermatoses. He spoke before the Texas Medical Association at Forth Worth on June 29.

MRS. QUINDARA DODGE has been made chairman of the Committee on Industrial Nutrition, a new subdivision of the Massachusetts Committee on Public Safety and the Massachusetts Committee on Industrial Health. This committee, made up of representatives of management, labor and professional workers, is finding practical ways to give assistance to industries.

LLOYD GORDON, formerly associated with the Industrial Hygiene Laboratories of Chrysler Corporation, and more lately with the Division of Industrial Hygiene of the Michigan State Department of Health, has been appointed to the staff of the Industrial Hygiene Division of the Zurich Insurance Companies, Chicago.

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DR. ROBERTS A. HEARN has resigned as Director of the Division of Industrial Hygiene, Arkansas State Board of Health, and as A. A. Surgeon with the U. S. Public Health Service, to become medical director for Republic Aviation Corporation, Indiana Division, Evansville, Indiana.

MARION F. TRICE, co-director of the State Board of Health's Division of Industrial Hygiene, and the immediate past president of the NATIONAL CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, has been appointed director of the Bureau of Occupational Health, Tennessee State Department of Public Health. His office will be in Nashville.

—*Raleigh, N.C., News & Observer.*

DR. MEYER BROWN'S "The Mental Health of Workers," in INDUSTRIAL MEDICINE, March, 1943, was abstracted in Lippincott's *Digest of Treatment* for July. DR. LOWELL S. SELLING'S "A Psychiatrist Looks at Industrial Truancy," in INDUSTRIAL MEDICINE for April, 1943, was abstracted in Lippincott's *Digest of Treatment* for June, and in *Modern Medicine* for July.

DR. LEVERETT D. BRISTOL, health director of the American Telephone and Telegraph Company since 1929, has been appointed health director of New Jersey for a four-year term. If he accepts, DR. BRISTOL will succeed DR. JESSE LYNN MAHAF-

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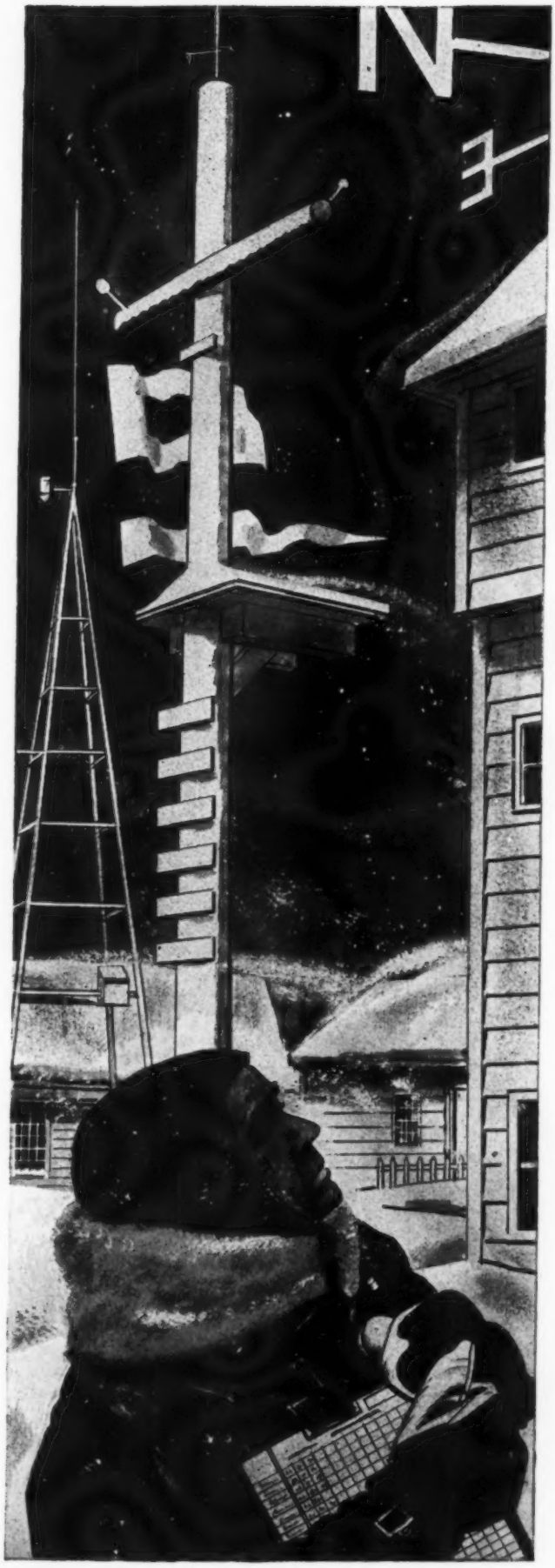

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1. Gallup, G.: American Institute of Public Opinion Survey, February, 1943

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FEY, Camden, who has held the office for the past 12 years. DR. BRISTOL was born in Chicago in 1880 and graduated at Johns Hopkins University School of Medicine, Baltimore, in 1907. After practicing medicine in St. Paul, he went to the Syracuse (New York) University College of Medicine in 1913 as associate professor of bacteriology. From 1914 to 1916 he was professor of bacteriology at the University of North Dakota School of Medicine, Grand Forks, and director of the laboratories of the state health department. For a year in 1916 he was a member of the faculty of Harvard Medical School, Boston. He served as state commissioner of health of Maine from 1917 to 1921 and professor of preventive medicine and public health at the University of Minnesota Medical School, Minneapolis, for a year in 1922. He was director of the New York State Health Demonstrations from 1923 to 1929, when he became health director of the American Telephone and Telegraph Company. He is a member of the Council on Industrial Health of the American Medical Association, a member of a number of health groups, and at one time served as president of the New Jersey Health and Sanitary Association and the Montclair Council of Social Agencies. His book, "Industrial Health Service," still a standard text, was published in 1933.

DR. C. O. SAPPINGTON, Industrial Medical and Hygiene Consultant, and editor of INDUSTRIAL MEDICINE, has been appointed to the Committee on Industrial Health of the Illinois State Medical Society. Under the chairmanship of DR. FREDERICK W. SLOBE the committee now includes DR. FRANK P. HAMMOND, DR. HAROLD A. VONACHEN, DR. R. I. BARICKMAN and DR. SAPPINGTON.

DR. FRANK W. MERRITT, 61, chief surgeon for the Carnegie-Illinois Steel Corporation in Gary, Indiana, for 22 years, died August 18 after an illness of two months. DR. MERRITT had been associated with the medical division of the United States Steel Corporation since 1905, when he was graduated from the University of Chicago medical school. He devised special types of splints which have been widely accepted in industrial surgery. In the World War he served as a major in the army of occupation in Germany.

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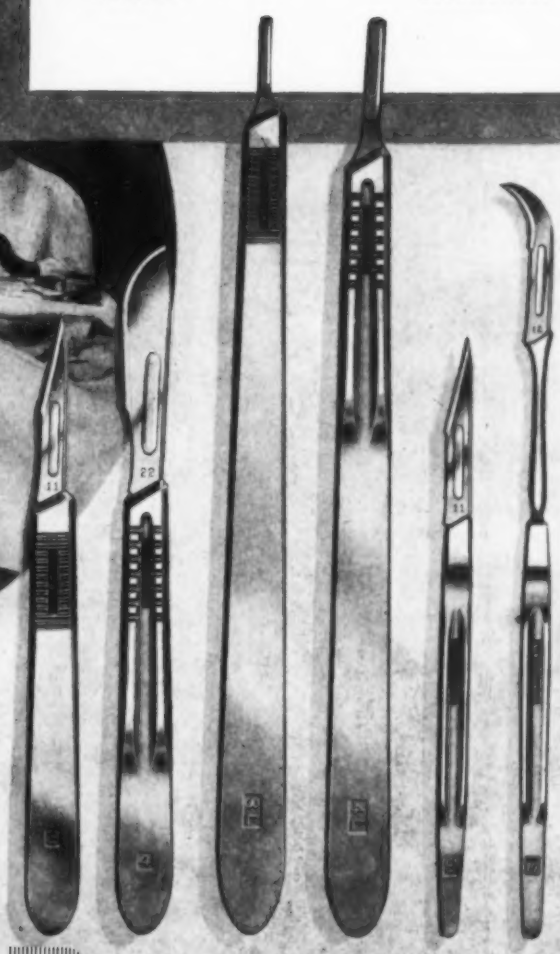

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GENERAL

IN RICHMOND, Virginia, a panel discussion on "Absenteeism in Industry Due to Sickness" was held under the auspices of the Industrial Health Committee of the Richmond Health Council. The panel was also sponsored by a number of committees and organizations. An industrial nurse, attending this panel, went back to her plant, the Freidman-Marks Clothing Company, Incorporated, employing about a thousand people, and discussed with her management some of the things she had heard at the meeting. As a result, the firm bought eight $25 war bonds and put these up for chance drawings, allowing all employees with a perfect attendance record for the previ-

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TO provide an organization, not for pecuniary profit, in which all agencies and societies, both medical and lay, concerned with the problems of industrial health can hold membership and can meet together in conference for the study, discussion and careful consideration of all industrial health problems and procedure; to engage in scientific research to determine the cause, nature, prevention and cure of diseases and injuries of occupations; to assist in establishing and supervising industrial health clinics to serve small industries; to establish and maintain hospitals which will furnish facilities for the care, treatment and study of occupational injuries and diseases; to make surveys of industrial medical services and recommendations for their improvement; to solicit, receive and administer funds for any purpose that will advance and/or improve industrial health; to establish undergraduate and/or post-graduate courses in industrial medicine and surgery and/or to cooperate with medical schools and industriess in maintaining such courses; and to use all those means, which from time to time, may seem wise, for the advancement of industrial health.

NEW HELP TO HEALTH FOR EMPLOYEES
A CHECKMATE FOR ABSENTEEISM

The indoor worker getting little or no sunshine is an easy mark for the time-wasting and efficiency-reducing illnesses of winter.

Bringing the "noon-day sun" to the war worker, the new Burdick "Solarium Shower," at little investment in time, space or money, fits into the employee-health program wherever production is the keynote.

THE Burdick "SOLARIUM SHOWER"

is a compact, automatic ultraviolet solarium for quick irradiation of the entire body.

The complete unit can be set up in five minutes, ready for use. It may be installed anywhere—washroom, shower room, first-aid department, rest room.

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MILTON, WISCONSIN

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Gentlemen: I would like to know more about the Burdick "Solarium Shower."

_____Please have representative get in touch with me.

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A minor injury, a back strain, or a simple boil may cut a worker's efficiency in half. Simple, yet effective in the relief it brings in painful and inflammatory conditions, is Numotizine—analgesic, decongestive cataplasm. Numotizine can save many an hour for war work. It requires no heating, is easy to apply and remove. A single application lasts throughout the working day.

NUMOTIZINE
THE PRESCRIPTION CATAPLASM

FORMULA:

Guaiacol	2.60
Beechwood Creosote	13.02
Methyl Salicylate	2.60
Sol. Formaldehyde	2.60

C. P. Glycerine and Aluminum Silicate q. s. 1000 parts.

Supplied in 4, 8, 15, 30-oz. and 3½-lb. glass jars.

Ethically promoted—not advertised to the public.

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ous two weeks to draw for them. Absenteeism dropped over 90%. This procedure was so satisfactory that the company is continuing to buy eight bonds each two weeks, to distribute them this way.

AMERICAN Congress of Physical Therapy will hold its twenty-second annual scientific and clinical session September 8, 9, 10 and 11, 1943, at the Palmer House, Chicago. The annual instruction course will be held from 8:00 to 10.30 A.M., and from 1:00 to 2:00 P.M., September 8, 9 and 10, and will include a round table discussion group from 9:00 to 10:30 A.M., Thursday, September 9. The scientific and clinical sessions will be given on the remaining portions of these days and evenings. A feature will be an hour demonstration showing technic from 5:00 to 6:00 P.M., September 8, 9 and 10. All of these sessions will be open to the members of the regular medical profession and their qualified aids.

INDUSTRIAL Hygiene Laboratory, operated by the army surgeon-general's office at Johns Hopkins University, looks after the safety of the largest and probably least-known group of war workers, 730,000 civilians in 504 army-operated industrial plants all over the country. The number is expected to reach about 845,000 by September. Women are a large and increasing proportion of these workers.

—*Boston Post*, July 26.

THE Division of Industrial Hygiene of the New York State Department of Labor has issued a 64-page bulletin on "Essentials of Health Maintenance in Industrial Plants," by LEONARD GREENBURG, M.D., ADELAIDE ROSS SMITH, M.D., and MAY R. MAYERS, M.D. The information is not for the most part new, but has been taken from various sources with the idea of summarizing in one publication the basic knowledge of the subject. It is divided into two major parts: medical service in the small plant, and medical service in large establishments. Known as New York State Department of Labor Special Bulletin No. 213, it is available at a cost of $0.35 from the Secretary's Office, New York State Department of Labor, State Office Building, 80 Centre Street, New York.

THE Committee on Fire Prevention and Engineering Standards of the National Board of Fire Underwriters discusses, in Bulletin 166, the formation of hydrogen from water decomposition by fires. The danger of hydrogen accumulating is theoretical. The gas burns as fast as it is formed. The almost instantaneous liberation of a large volume of steam has often been mistaken for a hydrogen gas explosion.

—*Industrial Hygiene Digest*, July.

Industrial Medicine Training

THE University of Utah medical school plans to develop training in the field of industrial medicine which will qualify graduates to fill key positions in this field throughout the nation, DR. A. CYRIL CALLISTER, dean of the medical school, told Kiwanians Thursday at the Hotel Utah. "Patch-up and carry methods of medical practice as affecting industrial workers just cannot be tolerated," he asserted. "Employers are discovering that trained employees are their most valuable asset. Physicians who can adequately advise and treat such workers to prevent occupational or other illness and disease will be at a premium." Illustrating the need for work in nutritional fields among industrial employees, he cited data to the effect that of 1103 employees of an airplane factory studied in a recent project, only 3% were obtaining adequate amounts of food among four principal groups: Yellow vegetables, citrus fruits or tomatoes, milk and eggs.

—*Salt Lake City Tribune*, July 30.

Research in Industrial Medicine

THE British Medical Research Council has arranged with the London Hospital for the establishment there of a department for research in industrial medicine. Dr. Donald Hunter, physician to the hospital has accepted a part-time appointment to the staff of the council as physician-in-charge of the department, and the council has appointed Dr. Kenneth Perry and Dr. Norman Spoor as full-time research assistants to work under his direction. The hospital is providing accommodation and facilities, and will be responsible for the treatment of cases under investigation. The primary purpose of the department is to undertake clinical researches into disorders affecting industrial workers, including both occupational diseases and others of a more general kind. This work will be done mainly in the department itself, but the staff will make visits from time to time to other parts of the country where special problems for investigation may be brought to the notice of the council. The department will

INCREASED *Potency*

GREATER EFFECTIVENESS • GREATER ECONOMY

More VITAMIN B_1 *More* VITAMIN B_2 *More* NIACINAMIDE

The patient for whom Betaplexin is prescribed now receives a substantially greater dosage of the various factors which comprise the vitamin B complex.

The potency of the declared factors in the various forms of Betaplexin is as follows:

	ELIXIR	SYRUP	TABLETS OR CAPSULES
	Each Teaspoonful (5 cc.)	Each Teaspoonful (5 cc.)	Each Tablet or Capsule
VITAMIN B_1	3 mg. (1000 U.S.P. units)	3 mg. (1000 U.S.P. units)	1.5 mg. (500 U.S.P. units)
VITAMIN B_2	1 mg.	1 mg.	0.5 mg.
VITAMIN B_6	0.3 mg.	0.675 mg.	0.1 mg.
NIACINAMIDE	10 mg.	10 mg.	5 mg.
PANTOTHENIC ACID	0.75 mg.	1.8 mg.	0.275 mg.

All forms also contain other factors including biotin, choline, inositol and para-aminobenzoic acid.

HOW SUPPLIED

Betaplexin Elixir and Syrup: Bottles of 4 and 16 fluidounces and 1 gallon.
Betaplexin Tablets and Capsules: Bottles of 50 and 500.

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ARMY E NAVY

This cherished symbol of distinguished service to our Country waves from the Winthrop flagstaff.

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CALOE OINTMENT
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also be responsible for teaching and instruction in the subject. This arrangement supersedes that made last year for the appointment of a whole-time director of research in industrial medicine attached to the council's headquarters. The post had become vacant through the appointment of Professor A. W. M. Ellis to the regius chair of medicine at the University of Oxford.

—*Science*, August 6.

Industrial Dentistry

LELAND H. EVANS, P. A. Dental Surgeon (R), U. S. Public Health Service, and industrial dental consultant for the Michigan Department of Health, recently prepared a set of Principles and Policies for Dental Programs in Industry which have been approved by the Bureau of Public Health Dentistry and the Bureau of Industrial Hygiene of the State Department of Health. A number of industrial medical consultants have shown interest in dental programs for their plants. Workers and their dependents in the Ypsilanti area may now receive emergency dental service at the clinic sponsored by the local health department and dentists. This clinic is operated by DR. NORMAN GERRIE, P. A. Dental Surgeon (R), U. S. Public Health Service, and the patients treated are referred from the Willow Run Bomber Plant and by local dentists. . . . THE Alabama State Dental Society, at its annual meeting in Birmingham, April 14, 1943, recommended that a dentist be assigned to the Alabama Department of Public Health for the purpose of developing dental programs for industrial plants. . . . REPRESENTATIVES of seven industrial plants in the Freeport (Illinois) area which have a total employment of about 5000 workers, are contemplating the establishment of some form of industrial dental service. These industrialists recently met with DR. GEORGE A. PETERS, Dental Consultant for the Division of Industrial Hygiene of the Illinois Department of Public Health, and representatives of the local dental society and the American Dental Association for the purpose of discussing various types of dental programs. . . . A SYMPOSIUM on industrial dentistry and programs of dental care for workers, sponsored by the Committee on Community Dental Health of the New York Tuberculosis and Health Association, was held in New York City in June. . . . AT THE 75th Annual Meeting of the Pennsylvania State Dental Society, the House of Delegates adopted a resolution requesting that the Pennsylvania Department of Health expand its dental activities to include industrial dentistry and to appoint a dentist to the staff for the promotion of dental programs in industry. In addition, members of the society, about to engage in an industrial dental program, were requested to report their intentions to the State Dental Society.

—*Industrial Hygiene*, July.

O.D. Penalty

A RECENT amendment to the Maryland Occupational Disease Statute includes the following: "It shall be the duty of the State Department of Health, and of the Commissioner of Health of Baltimore City, concurrently: (1) To receive reports of occupational diseases from physicians who have knowledge of such cases. (2) To study occupational diseases and ways and means for their control and prevention, and make the necessary rules and regulations for such control and prevention. Such rules and regulations for the control and prevention of occupational diseases shall have the force and effect of law. No such rule or regulation or any modification, amendment, or repeal thereof, shall become effective until public notice of such proposed rule or regulation, modification, amendment, or repeal thereof shall have been given, and a public hearing thereon held before the State Board of Health. Any person, firm or corporation failing, refusing or neglecting to comply with any rule or regulation made by the State Department of Health and the Commissioner of Health of Baltimore City, under the powers conferred upon them by this Section, shall be guilty of a misdemeanor, and upon conviction, shall be fined not more than One Hundred Dollars ($100.00) for each day that such violation continues, provided that a written notice of such rule or regulation shall be served on some person in charge of the place where such violation exists prior to any prosecution for violation of any such rule or regulation. (As amended by L. 1943, Ch.443, effective June 1, 1943.) (3) To investigate industrial conditions causing occupational diseases, or which may be suspected of causing occupational diseases, and make recommendations for the control of such condition. (4) To enforce regulations regarding occupational diseases. (5) To recommend to the Legislature for enactment such measures, including additions to the list of occupational diseases contained in Section 34 of

For the MISERY OF SIMPLE HEAD COLDS

Oil of eucalyptus 6¼ gr., menthol 1⅓ gr. in each av. ounce.

This Patented Applicator, included with each tube, instantly places a measured amount of V-E-M high up in the nose.

There's a lot of comfort in a tube of V-E-M

V-E-M quickly clears nasal passages of temporary congestion . . . lubricates and soothes irritated membranes. And its cooling effect lasts for hours! Samples with applicator available to the profession on request. Write to Dept. I.

Schoonmaker Laboratories, Inc.
Caldwell, New Jersey

. . . a dramatic episode in the West campaign against delay

On August 9th, 1942,

Brandywine Creek overflowed its banks and flooded the property of the Lukens Steel Company in Coatesville, Pennsylvania. After the waters receded, in addition to the immediate danger of a serious epidemic, months of manpower delay were threatened in this, the home of the world's largest plate mill, because of filth, muck and mud. Trouble shooters of the West Disinfecting Company helped to prevent this delay. Roadways, buildings and material were thoroughly disinfected. Drinking fountains were made sterile and even files and records were salvaged. All this was started less than one hour after the flood had receded . . . and sick absenteeism was prevented almost completely.

West's Regular Service . . . While Less Dramatic . . . Is No Less Important

Each year, dermatitis (disease of the skin) is responsible for millions of hours lost from work by the men and women in American industry. Industrial Dermatitis is an occupational hazard —and as such is preventable. Dermatitis is encouraged by improper washing or through the use of harsh or abrasive soaps or cleansers that tend to injure the skin. Irritants such as certain chemicals, petroleum products, etc., or cutting oils containing harmful bacteria with which the skin comes in contact are just a few of the common causes of dermatitis. West supplies industry with special hand soaps, protective creams and disinfectants that help protect workers against this production-wasting scourge.

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WEST DISINFECTING *Company*

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CLIP TO YOUR BUSINESS LETTERHEAD, PLEASE

West Disinfecting Company, Dept. IM, 42-16 West St., L. I. C., N. Y.

Please send me FREE Literature on Protection Against Dermatitis

Name..... Title.....

Speed Healing with DOMEBORO TABS

New

FASTER, WET DRESSING THERAPY

When you want results—fast—in contact dermatitis, infections, bruises, abrasions, and other traumatic injuries where wet dressings are indicated, use Domeboro Tabs!

Domeboro Tabs act faster and better than Burow's and boric acid because (a) Domeboro Tabs are *lead-free*. They contain no lead to inhibit the local repair and growth of the skin by interfering with mitosis. (b) Domeboro Tabs provide an inert precipitate which helps keep compresses wet longer. (c) Domeboro Tabs make it easy for patients to carry on home treatment as instructed.

In key industrial and military medical establishments, Domeboro Tabs are preferred for wet dressings. They are recommended by the National Research Council and included in the military *Manual of Dermatology*.

Your job is to get men and women back at the job faster. Up-to-date wet-dressing therapy can help. Always remember to use and recommend Domeboro Tabs!

Patent Pending

For trial samples and literature, write

DOME CHEMICALS Inc., 250 East 43rd Street, New York, N. Y.

Stocks Available at

A. S. ALOE COMPANY

St. Louis	Los Angeles	Kansas City	New Orleans
1819 Olive	932 S. Hill	Bryant Bldg.	1330 Tulane

this Act, as their studies and experience may demonstrate to be advisable." THEODORE C. WATERS, of the firm of MULLIKIN, STOCKBRIDGE & WATERS, Baltimore, and Chairman of the Legal Committee of Industrial Hygiene Foundation, makes the following comment: "By virtue of the foregoing amendment (Chapter 443 of the Public Laws of Maryland, 1943) the State Department of Health and the Commissioner of Health of Baltimore City are empowered to enforce rules and regulations for the control and prevention of occupational diseases. Violation of rules and regulations is thereby made a misdemeanor with a fine of $100.00 for each day that the violation continues."

—From *Industrial Hygiene Digest*, June, 1943.

A.A.I.N. Meeting

AMERICAN ASSOCIATION OF INDUSTRIAL NURSES held its first annual meeting in New York City on May 1 and 2. There were over 100 industrial nurses in attendance, representing 16 states, and Toronto, Canada. The sessions were largely given over to business and organization, including adoption of a constitution. Provision was made for nursing consultants assigned to divisions of industrial hygiene in state and Federal health agencies to be admitted as associate members. Four papers were presented by industrial nurses in one afternoon session. The association voted to have material on industrial nursing prepared for publication in the various nursing journals. The officers elected by the membership to serve in 1943-44 are: President—CATHERINE R. DEMPSEY, R.N., Simplex Wire & Cable Co., Cambridge, Massachusetts; First Vice-President — ELIZABETH SENNEWALD, R.N., Dolphin Jute Mills, Inc., Paterson, New Jersey; Second Vice-President—POLLY ACTON, R.N., *The New York Times*, New York, New York; Third Vice-President—LUCILLE E. ESCHENBACH, R.N., Kingsbury Ordnance Plant, LaPorte, Indiana; Treasurer—MARTHA PURCELL, R.N., Thompson Products Co., Detroit, Michigan; Corresponding Secretary—ELSA H. LUNDSTROM, R.N., Liberty Mutual Insurance Co., Boston, Massachusetts; Recording Secretary—MARION BRITTINGHAM, R.N., F. G. Vogt & Sons, Inc., Philadelphia, Pennsylvania; Financial Secretary—KATHERINE JONES, R.N., Murray Corp. of America, Detroit.

—*Industrial Hygiene*, July.

A Thousand a Day

THE WAR Department announced on July 2 that an average of 1,000 of its civilian employees in Washington apply for medical treatment or advice daily in War Department emergency rooms. During May, 2,751 patients were treated and 555 were sent home as unfit for duty. There were 1,450 employees injured on duty, mostly minor injuries, who were treated in emergency rooms. Only 38 of these were sent to the U. S. Public Health Service. Patients whose attendance records are faulty are examined in the emergency rooms to determine their fitness for duty. Physicians also examine individuals who apply for parking space near entrances because of physical disabilities. Staff physicians have completed 4,646 chest x-ray examinations, and are handling 200 a day. Arrangements have been made with state and city health units for care and home supervision of any tuberculous persons found. The facilities of the George Washington University Hospital Medical School have been offered for treatment of some cases of lung and heart disease found by War Department doctors. The yearly per capita cost of treating the 44,000 civilian employees of the War Department amounts to $2.37. LIEUT. COL. A. J. LANZA, chief of the Occupational Hygiene Branch, Office of the Surgeon General of the Army, says the amount allowed annually for this purpose in industry ranges from $5 to $10 per capita.

—*J.A.M.A.*, July 31.

HEALTH control procedures include pre-placement and periodic examinations, using adequate records; follow-up on correction of physical defects; an adequate record system for all types of work done in the health department; first aid to illness; emergency services; consulting periods; health committees; health educational measures (on nutrition, posture, fatigue, morale, recreation and other kindred subjects); and maintenance of contacts with community health facilities.

—From an Editorial by C. O. SAPPINGTON, M.D., Dr. P.H., in Lippincott's *Digest of Treatment*, August.

In Childhood...

and Adolescence

LOOK AT THE BLOOD
TRADEMARK

In childhood and adolescence, the total hemoglobin increases with growth, and the store of iron in the body must be maintained proportionately. It is acknowledged that this added need for iron may be difficult to obtain from the food and, consequently, must be supplied as medication. Excellent results are offered by the use of specially prepared iron (easily assimilated ferrous sulphate—Plain or with Liver Concentrate) incorporated in . . .

*Hematinic Plastules**

THE BOVININE COMPANY ☆ CHICAGO

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UNGUENTINE*

In minor burns, UNGUENTINE offers medically sound therapy with three specific, desired effects:

1. ***Unguentine is analgesic.*** For prompt relief of pain—a soothing local anesthetic.
2. ***Unguentine is antiseptic.*** It fights infection with sustained contact and action.
3. ***Unguentine promotes healing.*** It aids regeneration, usually without scar formation.

UNGUENTINE is a useful surgical dressing for minor burns, abrasions and skin injuries. Its continuous antiseptic action is non-irritating and non-toxic; its contact with affected parts is prolonged—and it prevents the bandage from adhering to the wound.

FOR FREE SAMPLE of UNGUENTINE for professional and personal use, write—THE NORWICH PHARMACAL COMPANY, Norwich, New York.

Norwich*

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Syphilis Clinic

FOR the past two and a half years we have held our syphilis clinic on Sunday mornings. This is bad on the physician's time, but in general it causes most clinic patients to miss no work because of treatment. Some of our patients come over 20 miles for treatment, and hence they cannot come in after work. We have found that our patients do not like to work on the day of treatment. By giving the treatment on Sunday morning, the patients are ready to work Monday morning. Transportation is made simple by having all patients come in at the same time. Also, more economical packages of drugs and supplies can be used if a large group is done at once. For example, we use a .6 gm. package of mapharsen for eight to 10 patients with distilled water from one large container. Likewise we have some of our syringes put up in large rolls, 10 to a roll. This facilitates handling and sterilization. We attempt to keep our procedures as simple as possible.

—From "The Program Against Syphilis on One Hawaiian Sugar Plantation," by H. M. PATTERSON, M.D., in *Plantation Health*, July.

Keratoconjunctivitis Treatment

EFFECTIVE use of a solution of sodium sulfathiazole containing desoxyephedrine in the treatment of epidemic keratoconjunctivitis, the new eye disease, is reported in *J.A.M.A.* for July 10 by H. S. Gradle, M.D., Chicago, and G. H. Harrison, M.D., Waukegan, Illinois. "Epidemic keratoconjunctivitis," the two men say, "has taken an enormous toll of man-hours during the past year, for the average loss of working time incurred in each case is from 14 to 18 days. Consequently any measure that can reduce such wastage is worth trying, even though it may not be uniformly successful. On that basis we are reporting the use of a new therapeutic measure that in our hands has proved worth while. It is realized that the number of cases is small, that the results are only those of clinical observation and that the accurate serologic proof is missing." The authors say that the new medication is harmless to the tissues of the eye, and reduces the time of the acute aspect of the disease to three to seven days. The solution is used as eye drops. In the 50 cases reported by them, treatment was continued for several weeks after the acute phase had subsided.

Industrial Physicians Needed

THE NEED for a list of Minnesota physicians interested in industrial practice is being felt more and more keenly. Repeated requests for names of such physicians have come to the Division of Industrial Health of the State Department of Health. With this in mind, the Committee on Industrial Health of this Association at its last meeting decided to conduct a survey of the physicians of the state to determine what physicians are interested in industrial practice, on what basis, such as full-time or part-time, and whether or not they are interested in attending a short course in industrial medicine. It is thought that if a sufficient number indicate interest, a two- or three-day course could be arranged at the University of Minnesota. A questionnaire is being sent out to members of the Association in industrial areas.

—"Industrial Health," in *Minnesota Medicine*, August.

Off-the-Job Hazards

ACCORDING to an article in the *Statistical Bulletin* published by the Metropolitan Life Insurance Company (June, 1943), at least three workers are killed in "off-the-job" accidents for every two that are fatally injured while on the job . . . It was stated that machinists had five times as many mishaps off the job as while on duty; farmers and farm laborers 3½ times as many, and mechanics, carpenters, and steel and iron workers twice as many. Electricians and welders likewise had more accidents off the job than while doing regular work, and theirs are generally considered to be more than usually hazardous occupations.

—From an Editorial in *Illinois M. J.*, August.

Headed Off

THAT a paretic, newly employed, was recently discovered operating a crane eight hours a day in one of our major shipyards emphasizes the necessity and the value of well conducted pre-employment examinations. He probably would be better off, as would other workers in the yard, if he were in a hospital receiving adequate therapy for his syphilis.

—From "Medical Service in Industry," by DANIEL L. LYNCH, M.D., F.A.C.S., at A. C. S. War Session, Boston, March 15.

One Sneeze CAN WRECK PRODUCTION SCHEDULES AS SURELY AS AN ENEMY BOMB

Put the Proved Therapeutic and Prophylactic Properties of

SHERVAC ORAL COLD VACCINE

To Work in Your Plant

Air Borne Cold Infections Multiply Man-Hour Losses

A single sneeze from the work bench or the desk of an infected person can convey the virus of the common cold to every person within the area of air circulation.

The Greatest Single Cause Of Employee Absences

There is unmistakable evidence to indicate that upper respiratory infections cause about 50% of all short time involuntary absences, and impose a yearly toll of a billion dollars and more than 45,000,000 man-days of production time.

Much Of This Loss Is Preventable

The value of mixed vaccines in prophylaxis and treatment of the common cold and its complications is beyond the experimental stage.

Controlled clinical evaluations show an impressive degree of reduction in both incidence and duration of upper respiratory infections in groups immunized by the administration of oral mixed respiratory vaccines.

SHERVAC, Oral Cold Vaccine Tablets A Practical Means For Group Immunization

Being especially packaged for convenient dispensing in a cellophane enclosure holding 12 tablets, Shervac meets all requirements for convenience in serving groups. As 12 tablets usually suffice for one immunization or one therapeutic treatment, this packet prevents waste and minimizes cost.

SHERVAC—A Sherman Product

Included in each small, tasteless Shervac tablet are both the whole and the soluble antigenic products of approximately 60,000,000,000 organisms representing: Pneumococcus; Streptococcus; B. Influenza; M. Catarrhalis; Staphylococcus Aureus and Albus; B. Friedlander; H. Influenza.

The organisms contained in Shervac are processed without the application of heat. Heat being known to affect the antigenic potency of vaccines, the Sherman process insures retention of the full antigenic potency.

Being fully detoxified, Shervac causes no gastric distress or other undesirable reaction.

Adaptable To Any Set Of Conditions In Any Plant Large Or Small

Your inquiry will bring cost figures, sample of package and suggestions for workable group immunization plans.

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C. H. Sherman, M. D., *Founder*
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Please send sample packet of Shervac, with prices and suggested immunization plans.

Name_____ Title_____

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Number of Employees_____

INDUSTRIAL DERMATITIS

A New Use for GADOMENT

"....most of the occupational diseases encountered in our new war industries are dermatoses."

Schwartz, L., Med. Dir. U. S. Pub. Health Serv.

THE increase in dermatoses resulting from solvents, cutting oils, etc. is producing many new uses for

GADOMENT (Patch)

The *Original* American Cod Liver Oil Ointment

which has proved its effectiveness in burns, abrasions and various skin affections.

GADOMENT is sterile, bactericidal, stimulating to granulation and epithelization.

For the first-aid kit: Gadolets—small, convenient gelatin applicators containing Gadoment.

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Fidelity "STERICIDE"

This new product has met an immediate and enthusiastic acceptance. Industrial dispensaries, hospitals and physicians praise it highly. For sterilizing all INSTRUMENTS . . . GLOVES . . . UTENSILS. Non-alcoholic . . . does not evaporate . . . non-toxic . . . will not corrode or rust instruments or affect cutting edges . . . will not affect rubber. Very economical to use. Order a trial bottle today.

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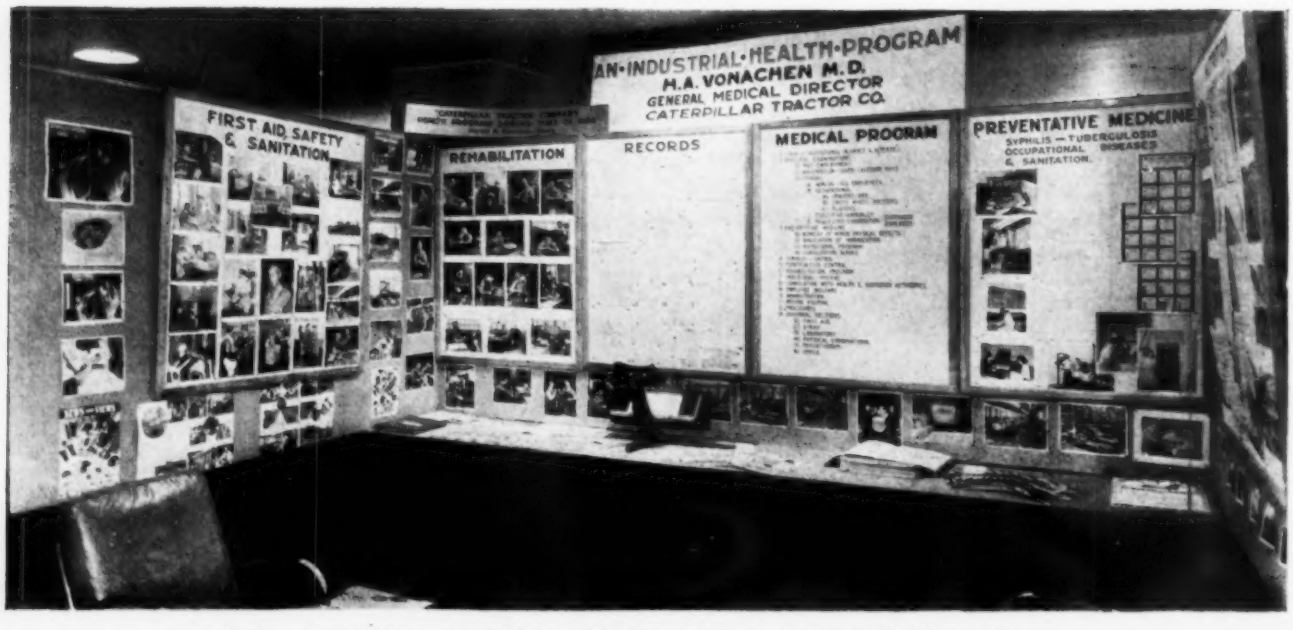
Honorable Mention

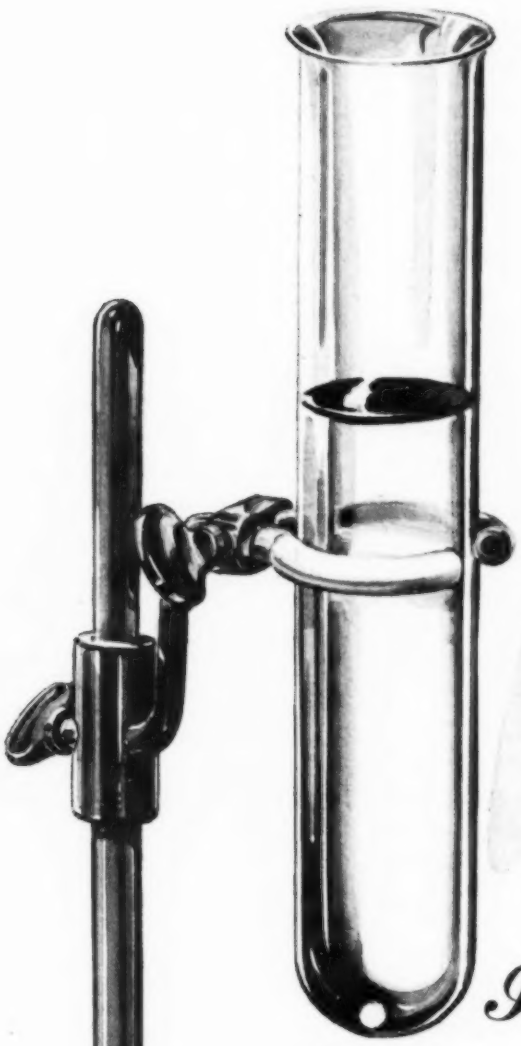
THE SCIENTIFIC Exhibits Committee of the Illinois State Medical Society has a Committee on Awards which recognizes, at each of its annual meetings, the outstanding exhibits in: (1) the Scientific group; and (2) the Practical and Educational group. Among the recognitions given in the latter group at the 103rd Annual Meeting in Chicago in May, 1943, was the Certificate of Merit awarded to DR. HAROLD A. VONACHEN, of Peoria, for his exhibit "Caterpillar Tractor Company Health Program During Wartime."

In Chile

IN CHILE, tuberculosis, cardiovascular conditions, and venereal disease are jointly responsible for 60% of all deaths occurring during working life, for 56% of all hospital admissions, and for 38% of the "latent morbidity" of apparently healthy persons examined by the medical services of the insurance institutions. These diseases, particularly tuberculosis, bring about an annual loss of 170 million hours of work, equivalent to the unemployment of one-quarter of the able-bodied population. To cope with this situation a Preventive Medicine Act was enacted some years ago. Among its clauses was one requiring periodic



Dr. Vonachen's Exhibit at the 103rd Annual Meeting of the Illinois State Medical Society, Chicago



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Vitamin **B_2** .. 3,000 USP units
Vitamin **C** .. 1,500 USP units
Vitamin **D** .. 1,000 USP units
Niacinamide .. 20 milligrams
Calcium Pantothenate .. 1 mg.

It was born in a test tube . .

and it can be tested in one! Dilute hydrochloric acid to the normal stomach solution. Drop in the pellet of *Vitalert*. Watch the outer layers dissolve in the acid solution, releasing the vitamins B complex and C . . . *and see dissolution stop at the inner coating*—which protects the oil soluble A and D from stomach acids, carries them through unimpaired to the intestines for absorption and dissemination . . . Super Seal construction prevents the loss of any vitamin values, delivers the full supplement with discernible benefits . . . High in potency, one pellet per day is the full dosage, economical and especially convenient for industrial feeding . . . Tests by many physicians prominent in industrial medicine have resulted in the adoption of *Vitalert* by many large companies . . . If not familiar with *Vitalert*, write for our "Secret Weapon" brochure . . .

New . . . *Vitallergy*, clinically tested Super Seal Vitamin C in high concentrate, with A and B_1 . . . effective in relieving symptoms of industrial allergies, clinical dermatitis, etc. . . . Clinical samples . . . Correspondence invited . . .

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THIAZOINT
10% SULFATHIAZOLE OINTMENT (HART)
A valuable aid in controlling pyogenic infection in wounds and minor surgery. Useful as an adjunct to the usual surgical procedures in: Contaminated and Acutely Infected Superficial Wounds and Burns; Boils and Carbuncles; Varicose, Diabetic and Decubitus Ulcers.
Supplied in 1-oz., 1-lb. and 5-lb jars.

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SULFATHIAZOLE-CALAMINE CREAM (HART)
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Supplied in 1-oz., and 1-lb. jars.

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SULFATHIAZOLE-SALIGENIN EAR DROPS (HART)
Bacteriostatic, Analgesic and Dehydrating. Useful in the treatment of Acute Otitis Media, Otitis Externa, Chronic Middle Ear Suppurations and similar conditions.
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HART NASAL JELLY
The original water soluble Epl.edrine Nasal Jelly. Relieves nasal congestion promptly and peasantly. Particularly convenient for ambulant patients.
Supplied in nasal tipped tubes.

SCABENZATE
LOTION (HART)
The Quick, Pleasant, Stainless, New Benzyl Benzoate Treatment for Scabies.
Supplied in 4-oz., pint & gallon bottles.

UNGUENTUM
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COD LIVER OIL OINTMENT (HART)
Stimulates epithelization and promotes healing with minimum scar formation. Valuable in the treatment of Burns, Wounds, Abrasions and Varicose Diabetic and Decubitus Ulcers. An excellent means of applying U.S.P. Cod Liver Oil without its unpleasant features.
Supplied in 1-oz. tubes and 1-lb and 5-lb. jars.

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medical examinations, systematically, and free of charge for the great majority of workers and salaried employees. Another clause introduced a system of preventive rest as an essential and effective means of saving the sick worker, treating him rapidly and prolonging his working life. Since the Act passed, 60,000 men and women have been medically examined and allowances for preventive rest have been paid to 20,000. It has enabled the controlled treatment of many victims of venereal disease, taking action in regard to contacts of tuberculosis and venereal disease, mass radiography, and provision of dental services at a low cost. Industrial medicine has been organized and a fresh impetus given to the study of occupational disease.

—National Tuberculosis Association, quoting *J. Roy. Inst. Pub. Health & Hyg.*, May, 1943.

CONNECTICUT State Tuberculosis Commission's new mobile x-ray unit recently started its first survey among employees of industrial plants, in cooperation with the New Haven Department of Health.

Report Forms

AS A RESULT of activities on a national level of a committee represented by the two insurance company associations, American Mutual Alliance and the Association of Casualty and Surety Executives, and a committee from the A.M.A. Council on Industrial Health, it was suggested that attention be given to possible simplification of reports required of physicians by compensation carriers and the industrial commission. The question of simplification of report forms on industrial accidents was referred to the Conference Committee on Open Panels which has the opportunity for frequent conferences with duly designated representatives of insurance company associations. The discussion of this subject in the report of the Conference Committee is encouraging and is in confirmation of the stated objections of the state society committees representing the physicians of Wisconsin.

—From the Report of the Committee on Industrial Health, GUNNAR GUNDERSON, Chairman, in *Wisconsin M. J.*, August.

COMMENT and OPINION

INVESTIGATION of the serum calcium content of animals ingesting large amounts of lead as well as animals receiving smaller doses over a longer period of time at different levels of calcium intake indicates that lead absorption does not appreciably affect the blood calcium level.

—From "Effect of Lead Absorption on Blood Calcium," by WENDELL V. JENRETTE and LAWRENCE T. FAIRHALL, in *Public Health Reports*, 58: 27, July 2.

IT IS Wilder's opinion that the satisfactory breakfast should contribute a good share of the day's nutritive requirements. Vitamin C and some carbohydrate may be supplied in the form of a fruit juice, B-complex vitamins by a satisfactory portion of whole grain cereal, breakfast food, or bread. Butter or properly enriched oleomargarine supplies some fat which by delaying the emptying of the stomach contributes to a satisfied feeling for a longer time. The value of drinking whole milk cannot be overemphasized. An egg or equivalent quantity of meat is most desirable for a breakfast.

—From *Nutrition Reviews*, August.

SILICOSIS is not a disease to which workmen would be equally exposed outside the place of employment. It is contracted by the inhaling of silicon dioxide dust over a more or less long period of time. This dust was present in the Uta-Carbon company's mine and the fact that applicant contracted silicosis while in its employ is sufficient to show that the dust which he inhaled there was the proximate cause of his injury.

—Utah Supreme Court, in the case of Dan Obradovich, quoted in *Salt Lake City Tribune*, July 30.

PHYSICIANS know enough to make every job safe, healthful and more productive. The problem is to be in a position to apply this knowledge.

—DR. L. M. PETRIE, Director, Industrial Hygiene Service, Georgia Department of Health, quoted by M. L. STJOHN, in *Atlanta Constitution*, August 1.

AN ARMY doctor, a major, was overheard at a Washington hotel the other day impatiently enumerating the half-dozen bases at which he had been stationed in the past few months. "First New York, then San Francisco, then New Orleans, then Richmond . . ." He counted off a couple more, then swore: "By George, the way they shift me around, they must think they're confusing the enemy!"

—BASCOM M. TIMMONS, in *Chicago Sun*.

AMERICA has achieved great strides in safeguarding and promoting public health in this war, compared with the 1917-18 conflict. . . . Thus far we have escaped the influenza epidemic, which wrought havoc with the armed forces and a segment of the civilian population in the last war. We have seen the typhoid death rate decline until it was the lowest last year in the nation's history. Sulfa drugs and blood plasma are used on the home front, as well as on the battlefields, to save lives.

—ROBERT C. HARPER, in *Washington, D. C., Star*, July 25.

IT WAS recently pointed out that at the Office of Price Administration alone the country's taxpayers have been supporting 2,700 lawyers—500 of them in Washington to devise the regulations, 2,200 of them throughout the country to see that they regulate. The British also have a ra-

tioning and price administration. It has worked for several years with astonishing success. Its legal staff totals 10.

—SENATOR HARRY F. BYRD (Virginia) in the Scripps-Howard Newspapers.

WAR plants should have no difficulty in securing rationed foods. Industrial canteens, lunch stands, cafeterias, mobile food units and restaurants supplying on-the-job meals to war workers are classed by OPA as institutional food users. As such, they are entitled to institutional quotas of rationed foods which can be granted by local War Price and Rationing Boards.

—OWI release, August 2.

CHARLES DELUCENA MEIGS was one of the most remarkable men in the history of American medicine, not because of anything that he personally accomplished—for a careful search of his works reveals not a single contribution to the healing art—but because he was wrong so often on such important matters and in such a violent manner. He was against everything new and he was against everyone who thought that anything new was good. He quarreled with Channing and Simpson over anesthesia in childbirth, and he berated McDowell when he removed ovarian cysts and thereby saved his patients' lives. Yet the world owes him some gratitude, for had he not assailed Holmes in such a bitter fashion the little doctor might never have returned to the attack.

—From "Oliver Wendell Holmes and Puerperal Fever," by FREDERICK C. IRVING, M.D., in *New England J. Med.*, July 22.

THE Senate has authorized an investigation into health conditions in war production centers and what was termed "acute shortages of doctors, nurses, dentists and allied personnel in many areas."

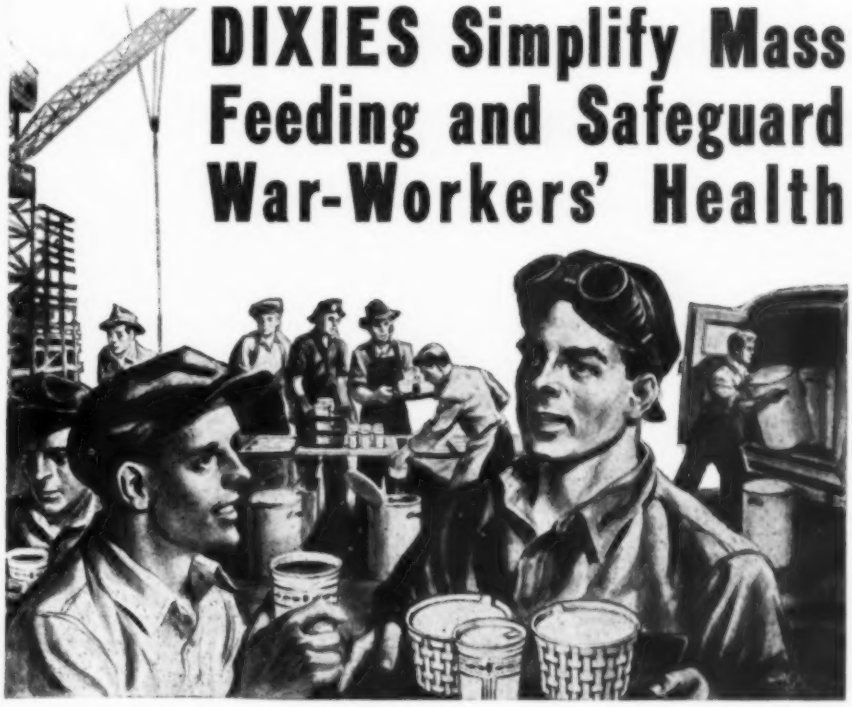
—Washington Item, June 8.

THE personnel-selection work of the Army is a major contribution to its mental and physical health as well as its fighting efficiency, and out of the present procedure it seems probable that there will develop a method for use in industrial selection in the future.

—From "Three Years of Military Psychiatry," by BRIGADIER J. R. REES, in *Brit. M. J.*, condensed in Lippincott's *Digest of Treatment*, June, 1943.

THE laundry crisis, due to manpower and fuel shortages, is causing grave concern throughout the country in so far as cleanliness and health are concerned. A Cleveland laundry limits customers to three shirts a week. In Detroit, laundries appeal to the public in paid advertisements to wash their linen at home. Los Angeles husbands get their Sunday exercise helping their wives with the wash. A Washington diaper service operates on a priority basis: sick mothers and war workers come first. A large Portland, Oregon, laundry is swept every morning by its secretary-treasurer.

—From "Health and Nutrition News Letter," Paper Cup & Container Institute, July 12.



DIXIES Simplify Mass Feeding and Safeguard War-Workers' Health

THE gigantic task of feeding thousands of hungry men and women on the job calls for speed and many short cuts. When the rush is on, when help is limited, well meant health protection can suffer.

A real time and labor saving aid in this tremendous commissary job is Dixie paper service . . . Dixie Cups and Food Containers that handle a variety of foods quickly, cleanly. After use, Dixies are easily disposed of. No sanitizing problem . . . no breakage hazard.

A Contamination Point to Watch!

A lot of today's sick-absenteeism is caused by colds, sore throat, "flu," and similar easily communicated diseases. Just as important as proper health protection in feeding is adequate control at the drinking sources. Mouth contact with anything that has touched the lips of others is dangerous. Dixie and Vortex paper cups check contagion at these vulnerable points.

Just in Case . . .

Uncle Sam's armed forces and high-priority war plants are using so many of our paper cups that we may not always be able to supply certain sizes you may want. We'll do the best we can. Uncle Sam must come first. We're sure you'd want it to be that way.

Dixie Cups and Containers are made at Easton, Pa., Chicago, Ill., Darlington, S. C., and Toronto, Can.

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ONE OF THE VITAL HEALTH DEFENSES OF AMERICA-AT-WAR

IN INDUSTRIAL FIRST AID

The burns, wounds and fractures of peacetime are trebled by wartime activities.

Here Flint, Eaton Sulfonamide preparations have become active factors in prophylaxis as well as in therapy.

Applied topically, they are effective because—

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Write for full information on Flint, Eaton Sulfonamide Products.

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Rehabilitation

GREAT care is taken to see that men are properly placed. One sailor, blown off the deck of a battleship and badly burned, was left with a nervous disability after his wounds had healed. He was unable to control the shaking of his hands. When he returned home the USES office got him several jobs in succession, but he couldn't overcome his nervousness. The Veterans' Employment Representative, determined to find the right job for him, took him to a small machine shop, where he was given a job operating a punch and shear machine located in a secluded corner. Here he was able to adjust himself more readily to work and his nervousness diminished; today he is a valued employee, and the twitching of his hands is scarcely perceptible.

—From an OWI release.

Worker Injuries

AS THE number of workers in war plants increases, the number of industrial accidents is greater. The number of work injuries increased from 1,603,500 in 1939 to an estimated 2,500,000 in 1942. According to the Secretary of Labor, more than 2,000 workers suffer disabling injuries in manufacturing plants every day. . . . How much industrial accidents add to the burden upon the hospitals is shown in this report from one on the Pacific Coast: "Most of our hospital beds are occupied by injured defense workers from the harbor areas or Army dependents and Navy dispensary cases. We are now caring for 350 patients with the same number of nurses that we formerly used for 150 patients. Twenty-four graduate nurses are urgently needed today. In three weeks, 17 obstetrical nurses will be necessary to staff a wing for the exclusive use of the local Navy Dispensary patients."

—OWI release.

The War Conference

THE FIRST joint meeting of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, and the NATIONAL CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS was held from May 24 to 27 at Rochester, New York. The purpose of this joint conference was to discuss industrial medical problems arising out of the present war production program, as well as the pooling of knowledge of the various groups participating. . . . As a result of this conference considerable progress in the organization of additional industrial health services, and in the study and control of health hazards incident to war production, was made. The pooling of this "know how" knowledge will do much to accelerate our war production program and at the same time reduce illness and absenteeism.

—LOUIS W. SPOLYAR, M.D., Director, Indiana's Division of Industrial Hygiene, in *Monthly Bulletin*, Indiana State Board of Health, July.

Heat

JOHNSTONE maintains that a person's ability to withstand excessive heat is a matter of circulatory adjustment. In this connection it is interesting to note that GEHRMANN is quoted as saying: ". . . since we have subjected all of our men who are exposed to high temperatures to a very careful examination with special efforts to determine any disease of the circulation and eliminating many who have any circulatory disturbance as shown by careful examination, we have had no difficulty" with heat disease.

—From "Heat Disease," in Parke, Davis & Company's *Therapeutic Notes*, July-August.

Physicians' Aides

IT HAS been suggested that nurses might satisfactorily conduct and record the results of pre-employment physical inspections—and observe this has not been called a physical examination. A physician should immediately check all defects and have referred to him all employees who frequent the plant dispensary for any cause. Periodic physical examinations for at least key employees and those engaged in hazardous occupations are also important in the contacts which will enable the industrial physician to supervise the health of the individual worker. There are also a great many other duties ordinarily performed by physicians which may be done satisfactorily by nurses. Auxiliary

CONSTANCY

The Most Important Feature of the Daily Protein Requirement

Of the three primary nutrients (protein, carbohydrate, and fat) protein alone presents these two interesting features: Its functions cannot be assumed or fulfilled by the other two; its daily requirement is constant, is not influenced by externally expended energy.

While protein can be converted to carbohydrate and fulfill all its functions, and while it may be able to substitute for fat, neither carbohydrate nor fat can substitute for protein in the body economy.

At least in part this feature accounts for the constancy of the daily protein requirement. Protein is needed not merely for tissue repair and growth, but also for the production of many internal and external secretions. Thyroxin, secretin, insulin, adrenalin, etc., are intimately linked with protein metabolism, hence it is imperative that adequate protein intake be maintained.

Since protein foods of animal origin are the first to be curtailed by war needs, protein derived from cereals assumes added importance.

Cereal breakfast foods contain an average of about 10% of protein, their actual contents ranging from 7% to 14%, depending on the grain source from which derived.

When one ounce (prepared cereal or its equivalent in cereals to be cooked) is served with two ounces of milk and a teaspoonful of sugar, this palatable dish presents about 5 Gm. of protein, biologically adequate because of the contained milk, 30 Gm. of carbohydrate, and 2½ Gm. of fat, a total of 165 calories.

In addition the cereal and milk together contribute appreciable amounts of B-complex vitamins, calcium, iron, and phosphorus.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

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A cooperative effort to present the nutritional value of cereal breakfast foods (natural whole-grain or enriched or restored for vitamins and minerals to whole-grain values), undertaken jointly by THE CREAM OF WHEAT CORP.... GENERAL FOODS CORP.... GENERAL MILLS, INC.... KELLOGG COMPANY ... NATIONAL BISCUIT COMPANY ... PILLSBURY FLOUR MILLS COMPANY ... THE QUAKER OATS COMPANY ... CAMPBELL CEREAL CO.... FLBERS MILLING CO.

workers, after suitable training, may be used to do routine dressings under supervision. They may also take over a great many clerical duties, cleaning and arranging of supplies, and inventory and other paper work, thus relieving the nurse for more important tasks. The important theme in the training program for these people should not be "Which cases should be treated," but "When should the doctor be called?" Adequate medical records become an absolute necessity if the physician is to exercise proper supervision of a medical service conducted according to such a plan. This is the only means by which he can keep in close touch with the health status of each employee-patient and accurately know what is going on in his medical department. However, such records can be simplified, be not too time-consuming in preparation, and still give an accurate story of the employee's contact with the medical department.

—From "Medical Service in Industry," by HAROLD EARNHEART, M.D., at A. C. S. War Session, Omaha, April 3.

Example of Inadequate Care

YOU CAN see from this that medical and hospital facilities are so strategically situated that no one need suffer for want of medical care, with the possible exception of some counties in the Missouri Valley where two counties with a combined population of 14,000 are without a doctor. I mention this specific case, *as it is being used as an example of the inadequate medical care.* However, this situation is temporary—owing to the illness of the one doctor who, single-handed, served these people for years. He expects to resume practice again. But, despite his absence, inquiry reveals that there has been no great hardship worked upon the inhabitants, as autos and good roads render it rather simple to transport the ill to hospitals within easy driving distances. As a matter of fact a great number did this very thing even with a practitioner in residence. Taking it all in all, our state is in a very good medical position, and there is no need to import alien physicians or to admit the cults and to practice indiscriminately.

—From the "Presidential Address," of A. R. SORENSON, M. D., North Dakota State M. A., *Journal-Lancet*, August.

Pre-Occupation Examinations

ON THE East Coast, the Gulf, and on the Great Lakes, it is usual for new workers to be given pre-placement physical examinations. In general, check-up examinations of men working on cranes, trucks, and the like are given at regular intervals; also jobs with possible disease risk are checked from time to time. On the West Coast, however, the labor contract governing most of the region stipulates that: "There shall be no doctor's physical examination nor age limit, except as required by law." The Maritime Commission fully recognizes the validity of obligations existing under collective bargaining agreements, and, with respect to physical examinations which would exist as a condition preceding employment, feels that the provisions in the Minimum Requirements for Safety and Health do not present any direct conflict with the prevailing obligations of contractors on the Pacific Coast. The distinction must be made that the purpose of the physical examination provided for under the Minimum Requirements is based upon public policy directed toward insuring safety and examination is not a prerequisite for employment, occurring after employment but before placement on the job. This distinction should be borne in mind in considering the text of the recent Safety and Health Standards.

—From "Health Control in Welding," by PHILIP DRINKER, in *California & Western Medicine*, July.

Metal-Fume Fever

THE ONSET is acute, and the symptoms resemble an attack of "flu" or grippe. A typical attack begins after the man has left his work and gone home, i.e., several hours after exposure to the fumes. Sometimes, even during exposure at his work, he may notice a metallic taste in the mouth and a dryness in the throat, as well as a feeling of nausea and tightness in the chest, which he may report at the time or before going home. After reaching home and going to sleep, he awakens with a shiv-

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1. The outer coating of the tablet protects water soluble vitamins until they reach the stomach, where they are absorbed.
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• Because industrial vitamin needs vary, our Vitamin Plans are flexible, easily adapted to the special requirements of the workers under your care.

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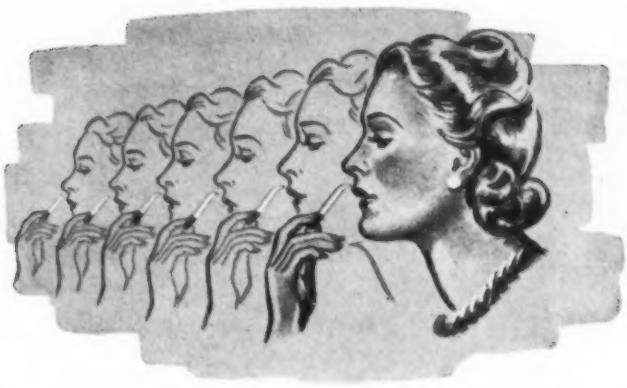

Even on repeated application

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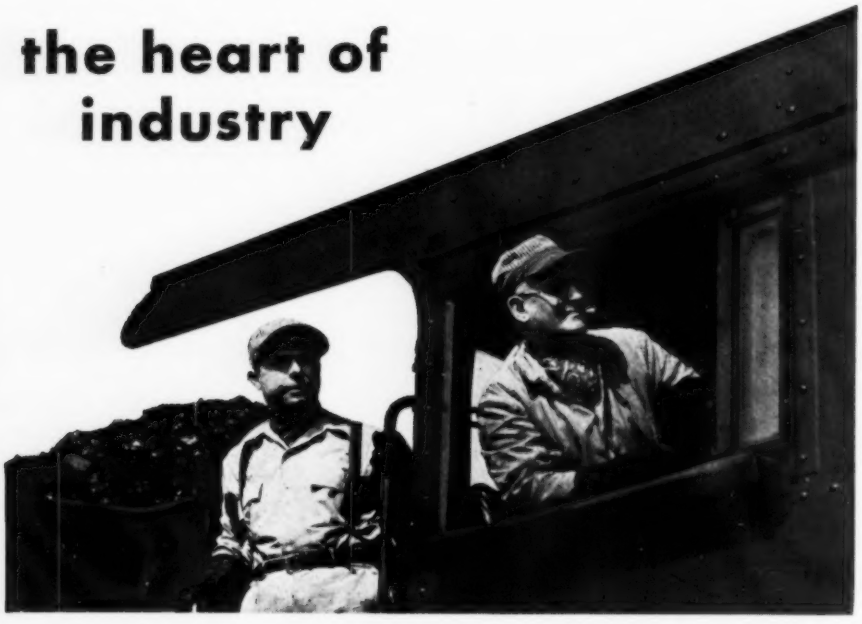
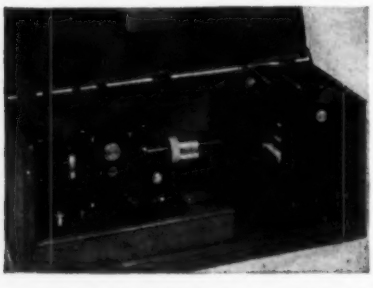


Today, as never before, industrial operating conditions wherein failure of the human heart may jeopardize war production, are a matter of national concern. Progressive industry . . . large and small . . . now recognizes frequent periodic physical examination as essential.



THE "SIMPLI-TROL" PORTABLE MODEL MOBILE AND STATIONARY MODELS ALSO AVAILABLE

Executives, as well as workers on hazardous jobs, need frequent and complete physical examination. No such appraisal can be considered complete without an accurate electrocardiogram. The CAMBRIDGE Electrocardiograph helps the Cardiologist meet the new responsibilities now being thrust upon him in civilian, industrial and military service alike.

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ering chill which often lasts one or two hours. He then feels feverish and breaks out in a profuse perspiration. His temperature is usually found to be between 100 and 102° F. At the end of the attack he aches all over and feels exhausted. Such an attack is typically short-lived, and lasts only 24 to 48 hours. An interesting feature is that these workers often develop a certain immunity or resistance if they continue at the same work. If, however, they get away from welding for a time, they rapidly lose this immunity. Thus, it happens that many of the older workers, having had one attack early in their career, never have another unless they leave this work and then return to it after an interval. Such an attack may so resemble the onset of influenza that it is sometimes difficult to be sure whether we are dealing with metal-fumes fever, or an attack of "flu" or grippe. Of course, there is the history of exposure to zinc fumes, but not all workers thus exposed suffer an attack of zinc chills. As a matter of fact, the majority do not. It has been estimated that out of 100 workers regularly exposed to galvanized fumes, about 75 do not suffer at all. About 20 out of the 100 have chills occasionally, and only five have frequent attacks. Often there is no typical attack at all, but the patient complains of an annoying soreness of the throat, or of a dry, hacking cough that tends to persist. Sometimes the chief complaint is nausea, with or without vomiting, and loss of appetite. A common and very uncomfortable condition is a feeling of constriction or tightness in the chest, when every breath becomes an effort. Not infrequently the chief trouble is that after an acute attack the patient is left tired and weak, with no pep or ambition, but with a sense of nervousness which makes him feel unfit or indisposed to return to work for many weeks. Physical examination is usually negative, but the morale seems to be lowered. For want of a better name, I refer to these men as cases of "welding-fume neurosis."

—From "Welding Fumes and Gases: Their Effects on the Health of the Worker," by JOHN BRODIE, M.D., in *California & Western Medicine*, July.

Falls

SPEAKING to foremen and supervisors of war plants on the subject of "Handling Materials—Falls and Personal Protective Equipment," EDWARD C. JACOBS, assistant divisional engineering manager, American Mutual Liability Insurance Company, revealed that 1942 industrial accident records show 24% of compensated occupational accidents occurring in connection with handling materials. Of the total compensation paid, 15% was charged against this accident group. In the "falls of persons" group, 18% of the compensated accidents were found, while 23% of the total compensation paid was charged to this group.

—*Brooklyn, N. Y., Eagle*, July 30.

V. D. Increase

SO FAR the country has escaped the usual wartime epidemics of venereal diseases. This is perhaps due more to the momentum acquired during the period 1938-42 than to current all-out effort. There was, however, a 20% increase last year in the number of patients admitted to clinics, and an increase in the number of cases reported by private physicians. A large part of this, possibly all of it, can be accounted for by the great increase in the number of serological tests performed and the general intensification of case finding throughout the country.

—From the "Opening Remarks" of SURGEON GENERAL THOMAS PARRAN, at the 41st Annual Conference of the U.S.P.H.S. with the state and Territorial Health officials.

Tuberculosis Survey

DURING the second week of February, 1943, the Basalt Rock Company, Inc., of Napa, California, conducted a fluoroscopic survey of its entire personnel for tuberculosis. We understand that such an undertaking was the first of its kind ever tried in the Bay region, and, in fact, that in several particulars it was unique in our national war on tuberculosis. . . . The company prepared the examination quarters, which consisted of a dark room for the fluoroscope and a waiting room. The results of the examination showed that out of the 2,410 persons examined, 23 suf-

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IN LINE WITH RECENT FINDINGS*

SURGICAL therapy with Foille as outlined in literature to the physician suggests the following procedure:

RECENT BURNS

Avoiding the delay of debridement, immediately apply Foille saturated dressings to burned surfaces, keeping moist with frequent applications. It is not essential that initial dressings be disturbed for first 48 hours. Hamilton** employs compression dressing to deeper, extensive lesions, leaving undisturbed from ten to fourteen days.

This is in line with the simplified technic used by Cope,* who states —"We did not debride the burn wounds because . . . the intact epidermis over the blebs protects against the entrance of bacteria, and because bleb fluid does not become contaminated by virulent organisms harbored in bland crypts." This technic possesses obvious advantages over "tanning" methods which necessitate time-consuming and painful debridement and cleansing.

FOILLE

Available in 2-oz., pints, quarts, gallons, 5-gallon bottles.
Distributed through Surgical Supply Houses, Wholesale Druggists, Pharmacists and Mine Safety Appliances Company of Pittsburgh.

*COPE, O.: The Treatment of the Surface Burns, Annals of Surgery, 117:885-893, (June) 1943.

**HAMILTON, J. E.: A Comparative Study of Local Burn Treatments, Amer. Jl. Surg., 58:350-364, (Dec.) 1942.

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Wounds, Burns, Ulcers, especially of the Leg, Intertrigo, Eczema, Tropical Ulcer, also in the Care of Infants

Desitin Ointment contains Cod-Liver Oil, Zinc Oxide, Petrolatum, Lanum and Talcum. The Cod-Liver Oil, subjected to a special treatment which produces *stabilization* of the Vitamins A and D and of the unsaturated fatty acids, forms the active constituent of the Desitin Preparations. The first among cod-liver oil products to possess unlimited keeping qualities, Desitin, in its various combinations, has rapidly gained prominence in all parts of the globe.

Desitin Ointment is absolutely non-irritant; it acts as an antiphlogistic, allays pain and itching; it stimulates granulation, favors epithelialisation and smooth cicatrisation. Under a Desitin dressing, necrotic tissue is quickly cast off; the dressing does not adhere to the wound and may therefore be changed without causing pain and without interfering with granulations already formed; it is not liquefied by the heat of the body nor in any way decomposed by wound secretions, urine, exudation or excrements.

DESITIN POWDER

Indications: Minor Burns, Exanthema, Dermatitis, Care of Infants, Care of the Feet, Massage and Sport purposes.

Desitin Powder is saturated with cod-liver oil and does not therefore deprive the skin of its natural fat as dusting powders commonly do. Desitin Powder contains Cod-Liver Oil, (with the maximum amounts of Vitamins and unsaturated fatty acids) Zinc Oxide and Talcum.

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Sole Manufacturer and Distributor in U. S. A.

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fered from non-infectious abnormalities, requiring some routine medical check-up; 49 had visible heart irregularities; 63 questionable tuberculosis referred for x-ray and clinical study; 28 showed active tuberculosis and were referred for treatment; and there were also three persons found to have possible malignancies of the chest. Thus, the total persons definitely in need of the examination were 166. The statistics also showed that the total number of employees was 2,680. Of this number, 51 were absentees after several resets, 94 were terminated during the examination period, and nine refused to take the examination on religious grounds. Thus the percentage who were examined was 95.4%. A close check of the time consumed was kept. This showed that the average time lost per man was 19 minutes. This, multiplied by the average wage of $1 per hour amounted to $763.17. The total expense, adding time lost, cost of the examination room, extra secretarial service and doctors' fees, divided by the total examinations given, shows the cost to the company to have been $.48 per person examined. . . . The responsibility for the actual conducting of the examination rested entirely upon the Napa County Association. Through its officers the attendants, nurses, and the examining physicians were provided. There were a great many "don'ts" that the company was compelled to force on the examination attendants. Because of the fact that this company is a signatory of the so-called Master Agreement between the West Coast shipyards and certain labor unions, physicial examinations cannot be made a condition of employment. For that and similar reasons the doctors could not be allowed to discuss their findings with any employee. The readings were given in code so that fellow employees, and even the man himself, were not informed of the findings at the time. Later the man and his family doctor were sent a letter showing the diagnosis.

—From "Experience in Industry," by NEIL CLARK GODFREY, in *California & Western Medicine*, July.

Burns

AN UNREASONABLE number of different preparations are being used for the treatment of minor burns in industrial plants. Regardless of what is put on the average minor industrial burn, it is apt to be healed in less than a week. We recommend the following treatment for minor industrial burns: (a) Wash the area with white soap and water. (b) Do not break blisters or otherwise "debride" the wound. (c) Cover with fine mesh gauze impregnated with petrolatum or 5% boric acid ointment. (d) Apply a firm dressing over this, bulky enough to keep dirt away from the injury but not too large to keep the man off his job.

—Conclusions of "A Statistical Study of Minor Industrial Burns," by ROY D. MCCLURE, M.D., and CONRAD R. LAM, M.D., in *J.A.M.A.*, July 31.

The Wagner-Murray Bill

IF THIS BILL 1161 is passed, private practice in this country will be at an end and one man, the Surgeon General of the Public Health Service, will have a czar's direction of the medical and hospital care of our people and the expenditure of a sum almost equal to the total yearly revenue of the Federal government in the nineteen-twenties.

—From an Editorial in *Minnesota Medicine*, August.

Tip to Writers

THOMAS EDISON once said, "Perspiration, not inspiration, is the big factor in all experimental work." It is indeed true that a great deal of work, observation and time need to be added to the basic requirements (knowledge and experience). To the serious reader of medical articles the lack of these basic necessities is often glaringly apparent; to the casual reader their absence may be obscured by the impressive words of a voluminous essay, words which too frequently form meaningless phrases. A recent article contained this astonishing dictum: "In the treatment of this disease it is necessary to have the patient avoid contracting upper respiratory infections." Such an asinine statement offers ample evidence that the author possesses none of the qualifications requisite for the presentation of a medical report. Why should such an article be accepted by an editorial board and allowed to get into print?

—From "Medical Literature," by FRANK G. METZGER, M.D., in *J. Florida M.A.*, August.

Prevention of Common Ailments

UNDER this general topic come such efforts as the prevention of the common cold which, apparently, in our company at least, accounts for one-third of all time lost due to sickness. Industry, as well as the public, would eagerly welcome a "sure fire" method of eliminating this practically universal complaint. I am not

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THE NEW ULTRA-VIOLET LAMP DESIGNED TO KEEP WAR WORKERS WELL

ONE of the most effective ways to reduce absenteeism is to give your workers the benefits of periodic sun baths. Hanovia's remarkable new lamp permits 15 men at one time to receive ultra-violet applications within a few minutes, permitting the handling of hundreds of plant workers daily.

Ultra-violet Sun Baths build body resistance against common ailments and assist in relieving fatigue and general physical let-down.

Experience has shown, where Hanovia Ultra-violet Lamps are installed absenteeisms due to colds and other simple ailments are reduced considerably.

Here is an official medical record showing how absences caused by common colds were reduced by over 40%.

Dr. J. B. Sherman, medical supervisor at Cadbury Bros. works at Bournville, England, made elaborate and careful tests on 1635 employees with various methods of preventing colds.

> While the average absence due to colds amounted to 106 days per 100 workers, in the group given periodic sun baths under Hanovia Ultra-violet Lamps, this record was lowered to 66 days per 100 employees.

Dr. Sherman concludes:

> "It was found that the only method of real value was ultra-violet irradiation, which reduced both the severity and the number of colds in patients so treated."

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Hanovia engineers will gladly cooperate with any plant management and furnish estimates, blueprints and complete information on the installation of Hanovia's "Lighthouse" for group irradiation.

Inquiries will receive prompt attention. Use the coupon below.

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World's largest manufacturers of Ultra-violet Equipment

Please send me further details about Hanovia's "Lighthouse" —the new Ultra-violet Lamp for group irradiation.

Name_____

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IM9

9:10
Subject notified to report for x-ray

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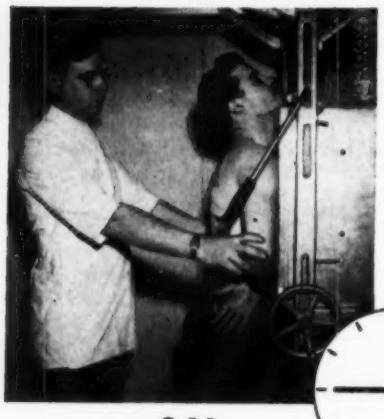
An employee need be absent from his occupational work only 10 minutes or less in order to have an exposure made. Based upon a personnel of 500 individuals, the total loss of productive time is equivalent to but 84 work-hours of one person . . . a valid consideration during this period of National Emergency.



9:14
Radiographic exposure is made

9:17
Subject back at work

Write for comprehensive data available on request

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sure just how the medical profession generally regards cold remedies or preventives, but many industries are trying out some of those now on the market. My own company is currently making a test of oral cold vaccines on about 5,000 employees with a view toward determining how effective they are in preventing colds. Along with these vaccines we give a small pamphlet on good living habits. Some companies have tried furnishing vitamin capsules to their employees while others have held to the view—based upon their own medical division's recommendation—that vitamins can best be secured through the use of proper foods. In any event, there appears to be a definite trend toward taking an interest in the prevention of some of these minor ailments which contribute so much to the discomfort of the individual and to lost time from sickness.

—From "Current Trends in Industrial Health," by T. S. PETERSEN, Standard Oil of California, in *California & Western Medicine*, July.

North Dakota

INDUSTRIAL health was first emphasized during the first World War and now, in this global war, it reaches its greatest field of usefulness. It must be appreciated that proper care of the sick and injured worker is a responsibility, not only of medicine but also of management and labor, and it is only by active cooperation between these three groups that the best results will be obtained. While the larger industries are well organized and functioning efficiently, the smaller plants still do not have similar advantages and their entire medical program is often provided by the general practicing physician. . . . North Dakota is not a highly industrialized state, however, what industries we do have, fall in the so-called smaller plant groups where the medical and health service is not organized as well as in the larger industries.

—C. J. GLASPEL, Chairman, Committee on Industrial Health, North Dakota State Medical Association, in *Journal-Lancet*, August.

Injuries of the Hand

AT THE Boeing aircraft factory 75,000 cases of injuries of all types are handled each month, and 48,750 (65%) of these involve the hand. Thus hand injuries account for 65% of all man hours lost. . . . Following are the methods employed by Dr. Homer Dudley (Seattle): "(1) Pre-operative examination is done with nose and mouth adequately covered and the use of sterile gloves and instruments; radiographs when indicated. (2) Preparation of the wound. The hand and arm are placed on a very secure arm rest, washed over a Kelly pad. A tourniquet is used to obtain a bloodless field and never anything smaller in width than a blood pressure cuff is used. This is first well padded with cotton. (3) Debridement is accomplished by removal of all tags and devitalized tissue. Special attention is paid to those parts which may be of considerable aid in future reconstructive surgery. (4) Suturing of tendons and nerves is a specialized major operation and is never an office procedure. The future economic destiny of the injured person frequently depends upon the functional results obtained. Sutures should be of the smallest size adequate for needs; stainless steel wire and silks as indicated. Do not fail accurately to suture superficial fascia over reunited tendons to prevent crippling adhesions. (5) Dressing and splinting. Sterile sponge rubber is used to obtain a well fitting compression dressing. Anterior plaster of Paris splints, so-called "Specialist" plaster, maintains the hand in the position of function. We never use a circular application of plaster on the hands and forearm."

—From "Traumatic Injuries of the Hand," by W. B. HUTCHINSON, cond. in *Current Medical Digest*, August, from *Northwest Medicine*.

Industrial Mental Health

THE Michigan Mental Health Council has just issued a booklet entitled Industrial Mental Health Manual. This is for the use of plant executives, personnel and employment directors, plant foremen, etc.; it is useful for war-time emergencies, and for peace-time activities as well. The committee divides the industrial workers into four groups: (1) Those

To Prevent or Eliminate Infection in *Industrial Injuries*

Azochloramid preparations have proved valuable in treating the traumatic wounds of industry as well as those encountered among our armed forces. The reduced healing time and shortened period of hospitalization effected by prompt control of infection is a welcome contribution to greater industrial efficiency. The various forms of Azochloramid provide ready adaptability to the task at hand.

For antiseptic dressings and packings that remain moist

SOLUTION OF AZOCHLORAMID IN TRIACETIN 1:500

For direct application to granulating wounds

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For lavage, wet dressings, hot soaks and compresses

SOLUTION OF SALINE MIXTURE OF AZOCHLORAMID (aqueous, prepared from powder or tablets)

and **SOLUTION OF SURFACE ACTIVE SALINE MIXTURE OF AZOCHLORAMID (aqueous, prepared from powder)**

Azochloramid preparations are *Bactericidal*

—to all types of micro-organisms

—in dilutions non-toxic to tissue

—over prolonged periods

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They are the most stable of all chlorine bactericides

They are strongly deodorant

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"In our plant hospital we have used the 1/500 solution in triacetin, routinely in wounds as a prophylaxis against infection. After two and one-half years of experience, we are convinced that in any raw surface where infection is threatened, or even possible, the daily dressing by gauze moistened in the above preparation is a sure guarantee against suppuration. This insures healing per primum, and lessens both temporary and permanent disability."

Antiseptics and Their Action, R. M. Freeman: *Industrial Medicine*, February, 1940.

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Warrior

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Planning a gift for someone in service? Make it Camels . . . a carton . . . the *thoughtful* remembrance.

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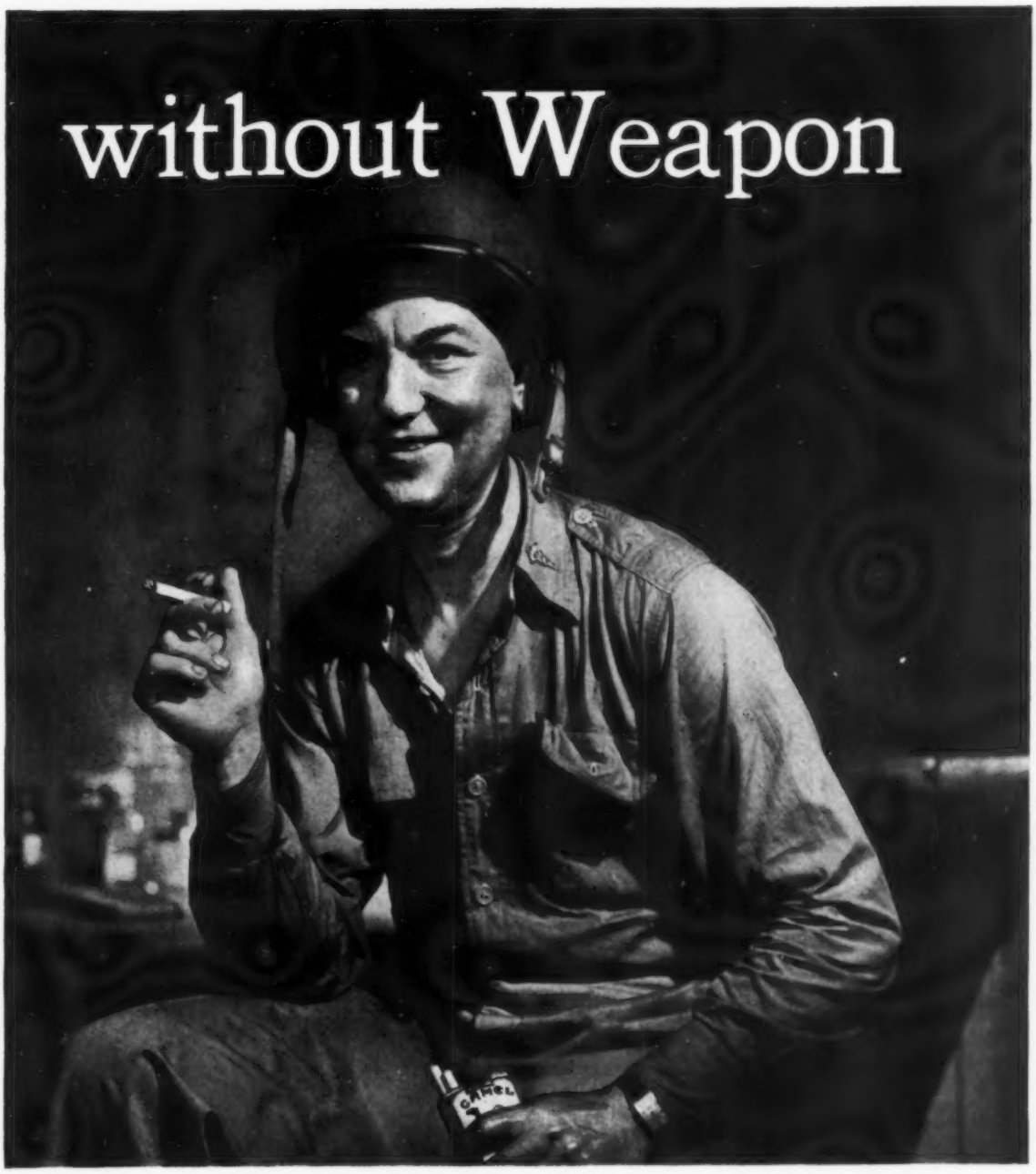
Camel



1st in the Service

*With men in the Army, the Navy, the Marine Corps, and the Coast Guard, the favorite cigarette is Camel. (Based on actual sales records.)

New reprints available on cigarette research—Archives of Otolaryngology, February, 1943, pp. 169-173—March, 1943, pp. 404-410. Camel Cigarettes, Medical Relations Division, One Pershing Square, New York 17, N. Y.

— Costlier Tobaccos

No shadow of slavery *or sickness . . .*

WHILE MEN DIE and others fight on . . . that War for our children may never be more than a game . . . medical demands increase and the importance of X-Ray grows. For our children must not only be free, they must have the forces of health and vigor which are so strongly inherent in the Four Freedoms for which we fight.

Though we now know that this weapon of medicine, the X-Ray, may lend itself to such wartime duties as checking for weak spots in the armor plate of a battlewagon or revealing interior flaws in a pressure vessel, let us always uphold the original and most essential job of this medical tool—that of checking the inception and growth of disease.

And we at Patterson are humbly proud to contribute to the work of this science . . . to reaffirm our assurance that intensive screen research is being continued, that the quality and supply of our X-Ray Screens will be maintained.

Behind our army which combats the forces of slavery, we shall continue our fight against the more formidable forces of sickness. Patterson Screen Division of E. I du Pont de Nemours & Co. (Inc.), Towanda, Pa.

DU PONT

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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

with serious mental disorders—e.g., various psychoses. (2) Those with minor mental disorders, such as psychoneurosis, hysteria. (3) The chronic maladjusted—e.g., chronic states of worry or anxiety. (4) The normal group, who, under stress, may show excitement or depression. Examples of various symptoms are found under each group. It is felt that the first two groups are in the minority because they are, in general, recognized more readily and cared for by specialists. The last two are composed of those who make up the mental-health problems. There is no definite line of demarcation between groups three and four. The program prepared by the council, composed of representatives of government, management, labor, and the medical profession, has as its goal the helping of industrial workers to solve problems that cause them to worry on the job. The procedures offered are not for the solution of personnel difficulties, but for the solving of the personal problems that prevent the best effort being given. The manual states that "every person in a war industry from the plant manager down to the sweeper has personal problems. These are of two general types: first, difficulties on the job; and second, difficulties outside the plant. The order in which we thus list the two types of problems does not indicate their respective significance; the one is just as important as the other, and both have a way of affecting the performance of industrial personnel on the job." The program discusses personal relations, causes of worry, and sources of aid. It gives excellent information relative to the wastage of energy caused by worry, the recognition of the worried worker, the signs and symptoms of the worried worker. Copies of this manual may be obtained by writing to HAROLD G. WEBSTER, Executive Secretary, 1215 Francis Palms Building, Detroit, Michigan.

—*Mental Hygiene*, July.

"White Noise"

METHODS for solving the problem of "white noise" in airplanes, which is apt to get whiter and therefore worse as faster planes are built, are reported by Commander Leon D. Carson, U. S. Navy, Dr. Walter R. Miles, Yale School of Medicine, and Dr. S. S. Stevens, of Harvard University, to the Federation of American Societies for Experimental Biology. White noise is to sound what white light is to light. It is heard when all sound frequencies are added together, just as white light is seen when all colors, or light wave frequencies, are added together. The person on the ground listening to a plane high overhead hears only the low frequencies of the propeller. Inside of a really fast-moving plane, all the frequencies are heard together. Usually, the greater the speed, the whiter the noise and the more objectionable it is to the ear. White noise is not only disagreeable but produces temporary deafness and spoils communications. Three remedies are suggested. First, the noise in a plane can be made less white by improved aeronautical design or by application of sound absorbent materials. Second, communications can be improved even in the midst of white noise by use of high-fidelity microphones and earphones, equipment which is not yet being widely used in airplanes though a few major improvements are in process. Third, the microphone and earphones should be shielded from the noise by acoustic devices. Oxygen masks could be designed to include a microphone shield to cut out some of the white noise racket, and the ear can be shielded by an acoustic socket designed to provide a tight seal against the side of the head.

—*Science Service*, July 30.

The Record

THE industrial medical record, beginning with the job placement examination, augmented with all progress records including subsequent periodic examinations, is in fact a health biography of the worker. These records are often more complete than hospital records and are as privileged and confidential as all physician's records. However, upon written consent of the patient the contents of these records are available to the attending physician. Recently a physician contacted the department regarding the history of an unconscious patient whom he had been called to see. A quick check of the records revealed, through repeated examinations during the course of his employment over a period of five years, that the patient suffered a malignant hypertension. This information was made available

WITH the increased production effort in our war industries, there unfortunately has been a proportionate increase in the number of accidents of major and minor degree.

Sulfathiazole therapy is now available as Sulfamul, a stable 5% emulsion which is non-adhesive, non-hygroscopic and has high bacteriostatic value. Sulfamul is indicated in the treatment of Simple or Infected Wounds (incised, punctured or lacerated), as well as in Abrasions and Burns.

Sulfamul may be employed as a surface dressing and for impregnating gauze for packing cavities. It is easily applied and provides constant drainage.

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ACCURACY — no false reactions.

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to the attending physician. The industrial physician must consider that his is not merely an industry, but a cross-section of humanity of which he is medical adviser. Thus the industrial practitioner's job is a 24-hour, around-the-clock duty, which requires him to acquire a full and intimate acquaintance with the industry and the workers who comprise that industry. Through this full and intimate contact the industrial practitioner stands ready to cooperate with the attending physician of the worker in any matters related to the health of that worker.

—From "Medical Service in Industry," by REEVE M. BROWN, M.D., at A. C. S. War Session, Buffalo, March 12.

The Bottleneck

THE Commission on Industrial Health and Hygiene is gratified that 70% of the component societies held industrial health meetings as requested. The work must not stop there! Trade and labor organizations must be contacted, and a definite drive instituted to bring adequate medical service into all industry, especially into small plants. Allegheny, Lycoming, and Philadelphia counties are leading the state to the extent that, in all three, physicians have had instruction in the rudiments of industrial health. But, this has built a backlog of those who have not as yet been placed in industry. A bottleneck has been developed. It is not of our making, but we are trying to break it. The bottleneck is the laissez-faire attitude of the small employer toward proper health maintenance inside his plant. He thinks he can't afford this service. He can be shown that he can't afford to be without it. In a short time the county societies will have these arguments in black and white. But we cannot suddenly service all the industries in this state. We must approach the problem in definite, well-planned steps. For this year your commission suggests service for only one group—those plants employing 250 or more people. We take our cue from England. The British government has passed a law *forcing* all such employers to maintain an "in-plant" medical service. Do we Americans need to wait for such a jolt? Can't we do voluntarily what others must be forced to do by law? The answer will be forthcoming by 1944. Our goal is a medical service in all Pennsylvania plants of 250 or more employees.

—From an Editorial in *Pennsylvania M. J.*, May.

Case-Finding Survey

THE State Department of Health announces the completion of a health survey of the workers in the Brown Company mills at Berlin. In all 1440 persons were examined, which is roughly 50% of the entire payroll. The workers were offered their choice of any one or all of the following examinations: chest x-ray, serological test, urinalysis and a dental check up. Most had all four. "The purpose is primarily a tuberculosis case-finding project. This is done through x-ray chest examinations. Blood tests were taken for the purpose of screening out unrecognized syphilitic infections. Dental examinations were performed to determine what connection if any there might be between dental health and the occupation of the worker. The equipment used for the examinations was set up so that these could be done on a mass basis. The average speed which could be maintained was approximately 20 persons an hour. It was necessary for the examining doctors and technicians to arrange their hours to fit in with the working schedules. Most departments of this company are on a 24-hour 7-day week. This meant that the team had to arrange its schedule so that it was working very early in the morning and very late at night to cover the second and third shifts. Because of the layout of the mills, it was necessary to take down and assemble the equipment at six different locations. In each the men were examined first and the women last. It was noted that a greater percentage of the women took the examinations in comparison to the men. This project was successful only because of the close cooperation which was given by the management, the union health committee, the shop stewards and the company foremen. This entire survey was voluntary and in order to have some idea as to the number wishing to participate, forms to be signed by the individuals wishing the examination were circulated by the health committee through the shop stewards. In this way it was possible to keep a con-

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With *Creamalin* no secondary rise in secretion of acid gastric juice occurs. Moreover, there is no danger of producing alkalosis.

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U*nder adequate* ERTRON therapy, the arthritic patient can be rendered free from pain; mobility can be increased considerably; and the systemic evidence of metabolic disturbance can be controlled.

In the hundreds of cases studied intensively in leading arthritis clinics, the improvement in *Ertronized* patients followed quite closely a definite pattern.

ERTRON Parenteral
For the physician who wishes to reinforce the routine oral administration of ERTRON by parenteral injections, ERTRON Parenteral is now available in packages of six 1 cc. ampules. Each ampule contains 500,000 U.S.P. Units of electrically activated, vaporized ergosterol (Whittier Process).

First, a generally improved sense of well-being—increase in appetite and strength; better mental outlook. In undernourished patients, a gain in weight usually follows. This earliest evidence of favorable response indicates the systemic action of ERTRON. Passive mobility is next improved and, lastly, pain is gradually reduced, allowing greater active mobility.

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Ertronize the Arthritic Patient

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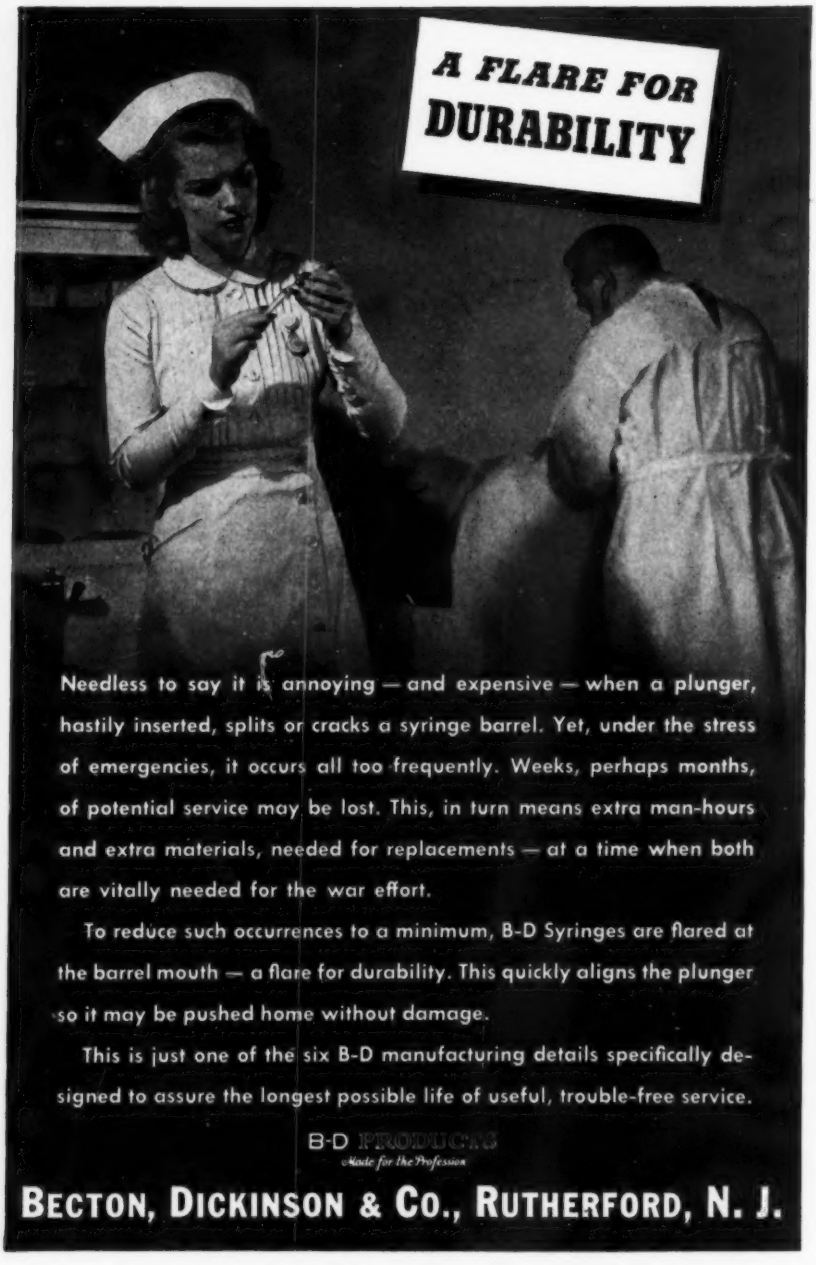
A FLARE FOR DURABILITY
Needless to say it is annoying — and expensive — when a plunger, hastily inserted, splits or cracks a syringe barrel. Yet, under the stress of emergencies, it occurs all too frequently. Weeks, perhaps months, of potential service may be lost. This, in turn means extra man-hours and extra materials, needed for replacements — at a time when both are vitally needed for the war effort.
To reduce such occurrences to a minimum, B-D Syringes are flared at the barrel mouth — a flare for durability. This quickly aligns the plunger so it may be pushed home without damage.
This is just one of the six B-D manufacturing details specifically designed to assure the longest possible life of useful, trouble-free service.
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stant flow of persons going through the examining station."

—*Laconia, New Hampshire, Citizen*, July 29.

Basic Education

I TOOK a course in industrial chemistry at the University of Illinois in 1922. It was a very good course, as far as learning about industrial processes, raw materials and products was concerned. However, the instructor gave us practically no information about the harmful effects from inhalation, ingestion or skin contact with chemicals used as raw materials, by-products and finished products. Neither did we learn anything about the ways in which workers in these chemical processes injure themselves by accidents and methods of preventing such accidents. It is only in the last few years that courses have been available to medical students teaching them the fundamentals of industrial hygiene and occupational diseases. Prior to that time it was necessary for the industrial physician to learn the fundamentals of industrial hygiene after he graduated into private practice. In the same way, the fundamentals of the methods of prevention of industrial injuries, both accident and occupational diseases, should be made a basic part of all engineering instructions in the colleges and universities in this country. It should be included along with the other fundamental instructions on the use of chemicals in industry. If safety is made a basic part of such instructions, the college graduate will have a complete picture of industry as he will find it and it will be unnecessary for him to learn about the prevention of accidents and occupational diseases after he has landed a job in industry. In addition to knowing how to use chlorine and benzol and lead in industry, his new employer will also expect him to know their harmful effect on the human body and how their absorption can be prevented. He will also expect him to know how to make gasoline out of crude petroleum without having the still explode, and how to clean a gasoline or oil storage tank in a safe manner so that it will not catch fire or explode.

—From "Safety in Industry," by MYRON A. SNELL, in *Journal of Engineering Education*, June, 1943.

That Grade Labeling

AS A MEANS of combating the shortage of employees, many drug stores are following the lead of prominent department stores and establishing self-service counters or departments. As with baby departments, retailers are learning that self-service departments are also usually most successful when nationally known brands are displayed. Such brands, having been extensively advertised, are pre-sold, thereby requiring little or no selling effort on the part of the store.

—*Detroit News Booster*, July.

For the Foreman

THE greatest difficulty which foremen seem to have is in being able to realize the very small quantity of some materials which is necessary actually to comprise the hazard. It is difficult to visualize as a hazard a few parts per million, or particles per cubic foot, or milligrams per cubic meter. The insidiousness of some of the disease hazards is also difficult to visualize unless one has had opportunity to see the pathological damage done by them. Every process which contains an occupational disease hazard should be carefully safeguarded either by total enclosure or ventilating exhaust. Protective equipment must be provided where there is likelihood of accidental leakage sufficient to become a health hazard in itself or where the ventilating system needs to be augmented by body protection. Personal hygiene must be enforced wherever any dermatitis hazards exist and on all operations which handle toxic material, such as lead. Washing several times a day may have to be enforced under regular supervision. On processes complicated by occupational disease hazards and located in difficult exposures, foremen must not permit employees to speed up to the point where the protective apparatus becomes ineffective. Congested areas are most difficult to make safe.

—From "Foremanship and Accident Prevention in Industry," published by the Engineering Department, American Mutual Liability Insurance Company.

Nothing New

THE newspapers reported three deaths from industrial poisoning among workers of the Anaconda Wire and Cable Co. plant at Hastings-on-Hudson, and the Habirshaw Cable & Wire Corp. at Yonkers, New York. The deaths were due to destruction of the liver by chemicals used in fireproofing and waterproofing cable lines. In addition, troublesome skin eruptions occurred among several hundred workers. Dr. Holla, Health Commissioner of Westchester county, stated that the deaths were due to "an entirely new disease," according to a report in the *New*

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SULFAMERAZINE

Sulfamerazine, or 2-sulfanilamido-4-methylpyrimidine, is a new compound which will simplify dosage and lower costs in sulfonamide therapy.

Sulfamerazine was developed at the Medical-Research Laboratories of Sharp & Dohme and has been subjected to intensive pharmacologic and clinical examinations during the past few years. Supplies of this new drug will soon be generally available.

Rapidly absorbed . . . slowly excreted

In comparison with sulfadiazine, sulfamerazine is more rapidly and completely absorbed from the gastrointestinal tract and more slowly eliminated by the kidneys. Thus smaller or less frequent doses of sulfamerazine are necessary to produce and maintain therapeutic concentrations of the drug in the blood and tissues.

Moreover, free and acetylated sulfamerazine are more soluble in neutral or acid urine than are the corresponding forms of sulfadiazine. This fact, together with sulfamerazine's slow rate of excretion, diminishes the possibility of drug concretions in the urinary tract.

Small, infrequent doses

The less frequently required doses of sulfamerazine reduce sulfonamide therapy to its simplest, most economical terms. In diseases in which four to six doses of sulfadiazine (or other sulfonamide) are given daily, the same therapeutic results may be obtained with a minimum of inconvenience to the patient and at proportionately lower cost by only two to three doses of sulfamerazine.

•

ADMINISTRATION . . . Sulfamerazine tablets are administered by mouth in the treatment of infections caused by pneumococci, streptococci, meningococci and gonococci. Solutions of sodium sulfamerazine can be given intravenously.

Moreover, the smaller dose and longer retention of sulfamerazine have suggested the new drug's value as a prophylactic against certain infections. Sulfamerazine is no more toxic than sulfadiazine and appears to be safer, especially with regard to the possibility of urinary complications.

Supplied in 0.5 Gm. and 0.25 Gm. tablets. Sodium Sulfamerazine Powder (for intravenous solutions) is available in vials containing 5 Gm. Detailed information concerning sulfamerazine may be obtained upon request from the Medical-Research Division.

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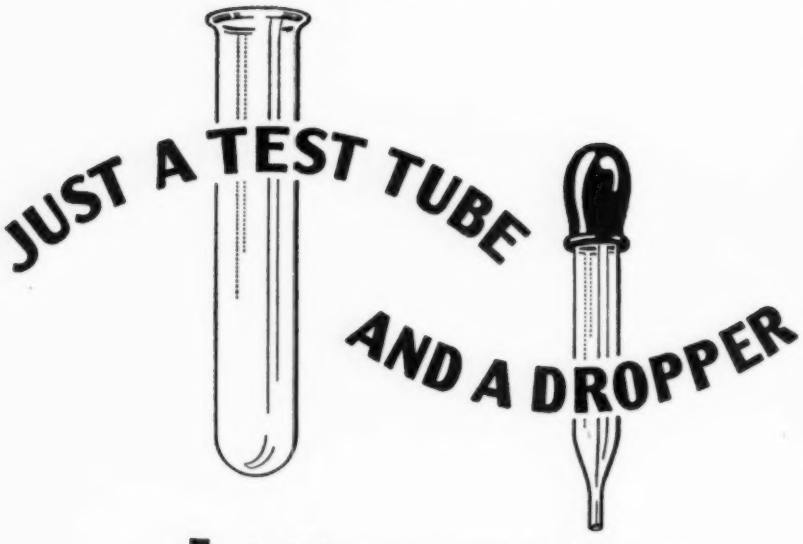

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York Times. Dr. Holla's statement notwithstanding, there is nothing new about the disease, and the precautions necessary against the chemicals used had been well worked out long before the deaths at the Anaconda plant. These chemicals are known as chlorinated naphthalenes and diphenyls. Their poisonous effect increases with the amount of combined chlorine present. They are noninflammable and are resistant to a high degree to heat, moisture and electricity. Because of these properties they are used extensively in wire insulation and electrical condensers.

—DR. D.C., in *Daily Worker*, August 1.

Paba

DR. H. A. SCHROEDER, of the Rockefeller Institute, some time ago discovered that tyrosinase, an enzyme which causes cut potatoes and mushrooms to darken in color, can reduce high blood pressure. This enzyme is involved in the formation of melanin (black), the pigment that colors hair. Come now Drs. W. A. Wisansky and S. Ansbacher with a piece of work that links tyrosinase with para-aminobenzoic acid (paba for short). They have found that paba restores gray hair to its natural color.

—*The Kablegram*, 4:1943.

Chicago's Health Problem

MR. ROOSEVELT has refused to permit increased diversion of water from Lake Michigan to protect this city's drinking water from pollution. . . . His attitude in the diversion case is in striking contrast to the pretended interest of the New Deal in public health. In that field it is seeking greater and greater Federal appropriations, leading up to the present drive to socialize medicine and hospitals and make every citizen in the country obligated to the rulers in Washington for his medical care. But when Chicago proposes to do something for the health of its own citizens, which will require no Federal appropriations, and, indeed, no appropriations of any sort, Mr. Roosevelt turns thumbs down. The planned protection of public health loses its attractions when there is no money to be spent and no jobs to be bestowed.

—From an Editorial in *Chicago Tribune*, August 13.

Fatigue

IT IS estimated that in about 80% of all jobs in industry muscular effort is slight or moderate, so that general fatigue is due to fatigue of the central nervous system. To this category belong also office work, shop work, laboratory work and some defense services, such as observation, communication, etc. Even in heavy industrial work fatigue of the central nervous system is important; Simonson and Sirkina failed to find any consistent relationship between fatigue in hard muscular exercise and any fundamental circulatory, respiratory or metabolic function. The replacement of muscular power by machine power in industry diminishes the importance of muscular fatigue and increases the importance of the fatigue of the central nervous system. While industry characterizes the technical progress since the beginning of the nineteenth century, the rate of this conversion was especially accelerated during World War I and under present emergency conditions, due to the shortage of manpower. In spite of the increasing importance of the fatigue of the central nervous system, most physiological investigations concerned fatigue in hard muscular work. This is probably due to the lack of simple methods for investigation of central nervous system functions.

—From "Fatigue of the Central Nervous System," by ERNEST SIMONSON, M.D., in *Clinical Proceedings*, The Journal of the Cape Town Post-graduate Medical Association, April, 1943.

Propaganda—or Poetic License?

TO GIVE the public a dramatic conception of how the doctor shortage has hit the typical factory boomtown, RKO has filmed "Medicine on Guard," a semi-documented, semi-fictionalized short (19 minutes), which is now being shown nationally. Though not a bad job of film-making as shorts go, "Medicine on Guard" will win no great acclaim among private physicians. It furnishes a comprehensive, sympathetic, and fairly accurate picture of the plight of a general practitioner battling against odds in an overcrowded town in wartime. But it also implies that the only way to relieve such a situation is by recourse to the U. S. Public Health Service. Physicians realize that the public health service can and does contribute to the solution of many wartime problems. At the same time, the profession can hardly be expected to wax enthusiastic over proposals for further government intervention in private medical practice.

—AL GRAHAM, in *Medical Economics*, July, 1943.

Serving on All Fronts

Sulfanilamide and its derivatives are rendering vital wartime service on all fronts. On fields of battle all over the world, as well as on the home front, these compounds provide the physician with remarkably potent weapons with which to combat wound infection and a wide variety of infectious diseases.

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"Profitable to Be Sick"

RHODE ISLAND'S compulsory cash sickness insurance plan, the first of its kind in the nation, has been amended by the State's General Assembly to widen its benefits so that many workers now receive considerably more compensation when they are ill or injured than when they work. Enacted in 1942 and put in force on April 1, 1943, the act was intended to help persons with low incomes and those whose wages stopped automatically when they were absent from work. It is administered from a 1% payroll deduction of the annual wages of all employees subject to the unemployment compensation act. Under this year's amendments, cash sickness insurance benefits are made available even to persons who receive all or part of their pay from their employers while absent through illness. Likewise employees injured at work and covered by the workmen's compensation act are permitted to collect both workmen's compensation and sickness insurance benefits. "No longer is the act to provide the only income to offset loss of wages due to absence from work because of sickness," the *Providence Medical News* comments. "On the contrary, it will be profitable to be sick, or at least to be absent from work because of 'any physical or mental condition.'" In a typical case, a worker receiving $25 a week in pay, upon meeting the act's requirements, would collect $13 a week from the sickness fund and also $25 a week from his employer if the latter followed the practice of many concerns in keeping employees on the payroll while they are ill. Another $25-a-week worker, if injured on the job, might collect $15 a week from the workmen's compensation fund, and $13 a week from the sickness fund, amounting to more than he would be paid if working. For still another injured worker, normally paid $50 a week, it might be possible to collect $30 a week in workmen's compensation, $18 a week from the sickness fund, and an additional $10 or $12 from his voluntary employee's benefit fund. Several industrial plants are reported to have canceled insurance protection for their employees, and it is predicted that competition between the sickness fund and private insurance companies can only be one-sided in favor of the state controlled plan.

—*Medical Economics*, July.

TEN YEARS AGO

DR. JEWETT V. REED, in "Psychology of Trauma," INDUSTRIAL MEDICINE, September, 1933: "In practically every injury the patient develops some form of psychic abnormality. In most cases this may be very slight, but it is impossible for the average person to sustain any form of trauma, even the slightest, without also experiencing some change in his normal mental attitude. To illustrate this let us consider the various psychic changes that may occur in different individuals and under different circumstances. In all instances the trauma itself will be a constant factor. For example, let us assume that each patient has suffered a sprained ankle of the same degree of severity, causing enforced rest for about a week. All of the psychic reactions to be enumerated are not neuroses. In some cases the reaction may vary from the normal, but at the same time it may be a pleasant reaction. For example, our patient with a simple sprained ankle may have received the injury while saving a life, winning a football game or other form of heroism, in which case his mental reaction may be very pleasant, reaching the state of exaltation. He may receive the injury in a frightful automobile accident, in which he narrowly escapes with his life. His mental attitude is likely to be one of profound thankfulness that he escaped with only a minor injury. A person in strained financial circumstances, but who carries a substantial accident policy, may feel quite happy over an injury that will give him some financial aid. An old lady suffered a fractured spine with complete paraplegia. On examining her a few weeks later her cheerfulness was very surprising. Further investigation revealed that the injury preventd her from attending a disagreeable court trial that she had been dreading. The real neuroses following trauma are varied and complex, but with careful study they can generally be properly grouped. Most patients who suffer from the true 'traumatic neurosis' may be classed under one of two headings: the fear neuroses, and the defense reactions. In some cases the patient shows characteristics belonging to both groups."

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This magazine is published to promote sound thought upon and concerning industrial medicine and traumatic surgery. To that end it will contain articles, news items, reports, digests, and other presentations, together with editors' comments. The editorial policy is to encourage frank discussion. On this basis contributions are invited.

Industrial Medicine

Reg. U. S. Pat. Off.

The editors will exercise care in checking on the accuracy of data printed, but in all other respects articles and opinions of which expression is allowed are the opinions of their authors—the editors reserving in all cases the right to comment on the same, in the current or any subsequent issues, as they may be inclined.

The Journal of Industrial Health, Occupational Diseases and Traumatic Surgery

With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

Volume 12 | September, 1943 | Number 9

History in the Making

—Industrial Medicine in the Terms of Now—

THE HISTORY of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS is the history of Industrial Medicine in the United States.

The annals of the latter go back to the last century; ANDREW M. HARVEY, the first Medical Director in this country, was appointed to that position for Crane Co. in 1896. The next two decades were those of slow expansion, with here and there another industry deciding to test the values of employee medical services, here and there another doctor discovering the possibilities of a career in industrial affiliation. By 1913 there were several hundred full-fledged medical departments, with rules and forms and practices adapted to their needs—the same rules and forms and practices that are now the backbone of industrial medicine in the full flowering of its national economic importance. For, "today the industrial physician is no longer looked on merely as a company doctor but is appreciated, and his group of specialties is a learned one."

Harvey Bartle

Meanwhile the motivations of the gathering together of industrial medical men into the organization of their own which is now the American Association were also in the making. These had inception in the gradual realization on the part of these men that, as their number increased, their individual isolation in the circumstances of their respective industrial duties was being enhanced. They were evolving a new concept in medicine, but it was a concept so different from anything in general practice that it had to be experienced to be understood. And so it was coming about that, as their work became more dependable in employee results, they grew each year more lonely in their professional contacts. They talked a strange language, and it was only rarely comprehended. This is well-illustrated in DR. HARRY MOCK'S recollections concerning the Association's organization meeting in Detroit in 1915: "Dr. Frank Billings was there, as well as Dr. John Vaughn, of Michigan, and several others of professional importance. They heard many things about medicine they never knew; but their responses showed that they realized the importance of the association then created. One of them said, 'there was born this day to organized medicine a child that will become the greatest son of all.'"

THE "CHILD" has reached maturity; its annual meeting at Rochester in May of this year was the 28th in unbroken succession; and it continues on its way to greatness. A report early in 1943 showed 1173 members and 283 Fellows—with 147 in Service.

Young as it was in 1917, the Association had an important part in World War I. In October, 1917, Dr. Franklin Martin, Chairman of the Medical Section of the Council on National Defense, organized a subsection on Industrial Medicine. According to DR. HARRY MOCK, of Chicago, "This committee proposed elaborate plans for the supervision of the health of all workers engaged in essential war occupations. Few of those in authority were familiar with this new field of medicine and it took weeks to sell the idea."

In the present war its importance did not need to be sold; its contribution began in June, 1940, and has continued on an expanding scale, with results already well known and admittedly valuable. It is significant that the 17 Officers and Directors, as the official board is presently constituted, look after the industrial medical health and well-being of 500,000 employees:

HARVEY BARTLE, M.D., Philadelphia, A. A. I. P. & S. President, is Chief Medical Examiner, Pennsylvania Railroad—appointed to that position in 1903. DR. BARTLE was born at Philadelphia in October, 1874; graduated at the University of Pennsylvania School of Medicine in 1902. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; a member of the Medical and Surgical Section of the Association of American Railroads, the Executive Board of the American Association of Railway Surgeons, the A.M.A. Council on Industrial Health, the National Committee for the Conservation of Man Power in Defense Industries, the New York and New England Railroad Surgeons Association, the Association of Surgeons of the Pennsylvania Railroad, and the Health Committee of National Safety Council's Steam Railroad Section. He is widely known as a writer and speaker; his presentations include textbook chapters on railway medicine and surgery, and numerous papers on industrial medical, surgical and hygiene subjects. In his attitude toward industrial medicine he is as much interested in the humanities as in the techniques.

Frederick W. Slobe

Melvin N. Newquist

Loyal A. Shoudy

Edward C. Holmblad

FREDERICK W. SLOBE, M.D., F.A.C.S., Chicago, A.A.I.P. & S. President-Elect, is Medical Director for the Automatic Electric Company, and Surgeon and Chief Surgeon for numerous other concerns. DR. SLOBE was born at Orange City, Iowa, in August, 1893; graduated, B.S., at the State University of Iowa in 1915, and M.D. at Rush Medical College, University of Chicago, in 1917; interned at Cook County Hospital, Chicago, 1917-18, 1919-20. In World War I he was First Lieutenant, U. S. Medical Corps, Assistant Division Surgeon, 17th Division, and Assistant Camp Surgeon, Camp Beauregard, Louisiana, January 14, 1918, to April 9, 1919. Establishing his practice in general and traumatic surgery, he became affiliated with Sinclair Oil's medical service in 1921, with Dryden Rubber Company, as Chief Surgeon, in 1928, and with Automatic Electric Company, as Medical Director, in 1935. He is a Fellow of the A.M.A., the American College of Surgeons, and the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; has been Vice-President, Secretary-Treasurer, and a member of the Board of Governors of the Institute of Traumatic Surgery; President and Director of the Central States Society of Industrial Medicine and Surgery; and President and a member of the Board of Governors of the Chicago Society of Industrial Medicine and Surgery, and he continues his interest and activity in their affairs. He was Director in charge of the Hospital Standardization Department for the American College of Surgeons, 1921-23, and Instructor in Surgery at Northwestern University Medical School, 1922-28. He has been one of the Editorial Board of INDUSTRIAL MEDICINE since 1933. He is widely known as an author and lecturer on industrial medical and surgical subjects, and, as Chairman of the Illinois State and Chicago Medical Societies' Committees on Industrial Health, is deeply interested in the education of general practitioners in the fundamentals of industrial medicine.

MELVIN N. NEWQUIST, M.D., New York City, A.A.I.P. & S. First Vice-President, is Medical Director for the Texas Company. DR. NEWQUIST was born at Wausau, Nebraska, in July, 1897; graduated, A.B., at the University of Nebraska, 1921, and M.D. at the University of Nebraska College of Medicine, 1924; interned at the University of Nebraska Hospital, Omaha, 1924-25. He was First Lieutenant, U. S. Medical Reserve Corps, 1924-34. He was established in general practice at Bloomfield, Nebraska, 1925-29. In 1931 he became identified with the American College of Surgeons as field representative in the Department of Industrial Medicine and Traumatic Surgery, and for the next eight years he was engaged principally in making the A.C.S. first-hand surveys of medical service in industry, resulting in the approval of industrial medical departments on the basis of the American College of Surgeons' Minimum Standard for Medical Service in Industry. He became Medical Director for the Texas Company in 1939. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS. His writings include descriptions and analyses of the nature, extent, costs and results of medical services in industry which have become reference and statistical standards. He is a member of INDUSTRIAL MEDICINE'S Editorial Board.

LOYAL A. SHOUDY, M.D., F.A.C.S., Bethlehem, Pennsylvania, A.A.I.P. & S. Second Vice-President, is Chief of Medical Service for Bethlehem Steel Corporation. He became affiliated with Bethlehem's medical department in 1914, and was appointed to his present position in 1920. DR. SHOUDY was born at Ellensburgh, Washington, in September, 1880; graduated A.B. at the University of Washington, 1904, and M.D. at the University of Pennsylvania School of Medicine, 1909; interned at Philadelphia hospital. He is a Fellow of the A.M.A., the A.P.H.A., and the American College of Surgeons; and a Fellow, and Past President of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS. He has been a member of the A.C.S. Committee on Industrial Medicine and Traumatic Surgery, the National Safety Council, and the Pennsylvania Medical Compensation Commission. He was a member of the Conference Board of Physicians in Industry, and one of the organizing members of the A.A.I.P.&S., attending its first annual meeting at Detroit in 1915. The Association and its development have always been among his major interests; in the earlier days, "when many doubters and opposers stood on the side lines," he was—sometimes almost alone—a tower of strength for the Association and all that it stands for.

EDWARD C. HOLMBLAD, M.D., F.A.C.S., Chicago, A.A.I.P. & S. Managing Director and Treasurer, is Regional Chief Surgeon for the Railway Express Agency, Local Surgeon and Medical Examiner for the Chicago, Rock Island & Pacific, and the Chicago & Eastern Illinois Railroads, Local Surgeon for the Chicago, South Shore & South Bend Railroad, and the Chicago Rapid Transit Company, Eastman Kodak Company and several insurance companies, and Consulting Surgeon and Medical Examiner for numerous other concerns. DR. HOLMBLAD is a Fellow of the A.M.A., the American College of Surgeons, and the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS (of which he was President 1934-35), and a member of the A.P.H.A., the American Association of Railway Surgeons, the Institute of Traumatic Surgery, the Central States Society of Industrial Medicine and Surgery (formerly a member of the Board of Governors), and the Chicago Society of Industrial Medicine and Surgery (of which he has been President and a

Richard P. Bell

Henry S. Brown

T. Lyle Hazlett

Edward P. Heller

member of the Board of Governors). He has written extensively on industrial medical and surgical subjects, and for the last several years has been a member of the Editorial Board of INDUSTRIAL MEDICINE. He is Associate Attending Surgeon at St. Lukes hospital, Chicago. He was a member of the Advisory Committee of the U. S. Public Health Service on Venereal Disease Control in Industry; was Secretary of the Committee on Industrial Health and Medicine of the Health and Medical Committee, Office of Emergency Management, Office of Defense Health and Welfare Services (since terminated), and is now Secretary of the Committee on Industrial Medicine of the National Research Council, Division of Medical Sciences, and the Committee on Industrial Health and Medicine of the Procurement and Assignment Services for Physicians, Dentists and Veterinarians.

RICHARD P. BELL, M.D., Cleveland, Ohio, A.A.I.P. & S. Director, 1942-44, is Medical Director for General Motors' Cleveland Diesel Engine Division, the Iron Fireman Mfg. Company, the Ohio Tool Company and other concerns, and is associated with a group of industrial surgeons serving many small industries in industrial health as well as industrial accident matters. He was born in Franklin, Pennsylvania, in 1887; graduated in medicine at Medico-Chirurgical College of Philadelphia in 1912; interned at Philadelphia General Hospital, and St. Vincent's Charity Hospital in Cleveland; was in the Ohio Cavalry at the Mexican border in 1916 and 1917, and Lieutenant, M.C., U. S. Navy, in World War I from April, 1917, to October, 1919; is now on the orthopedic staff at St. John's Hospital, Cleveland, and the surgical staff at Lakewood City Hospital. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; a member of the West Side Industrial Club of Cleveland, and of the Industrial Committee of the Cleveland Academy of Medicine, and the Industrial Committee of the Cleveland Office of Civilian Defense; Assistant Chief of Civilian Defense, Lakewood City; and Secretary of the Cleveland Association of Industrial Physicians and Surgeons.

HENRY S. BROWN, M.D., Detroit, A.A.I.P. & S. Director, 1943-45, is Medical Director for the Michigan Bell Telephone Company, Detroit. DR. BROWN was born in Providence, Rhode Island, in September, 1891; graduated in medicine at Tufts College Medical School, Boston, in 1917; interned at Boston and Providence hospitals; has practiced medicine in Detroit since 1919; was Medical Officer, U. S. Navy, during World War I, and active as Senior Medical Officer, Detroit Naval Battalion, until retired in 1939; became industrial surgeon for the General Accident Company in 1923; went into the medical service of the Michigan Bell Telephone Company in 1924; was appointed Assistant Medical Director in 1928, and succeded to his present position in 1930. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; and a member of the American Public Health Association, the Association of Military Surgeons, and the Council of National Defense and the Public Health Committee of Detroit's Board of Commerce.

THEODORE L. (T. LYLE) HAZLETT, M.D., Pittsburgh, Pennsylvania, A.A.I.P. & S. Director, 1942-44, is Medical Director for Westinghouse Electric and Manufacturing Company. Dr. Hazlett was born at North Washington, Pennsylvania in April, 1885; attended Grove City College, and West Virginia Wesleyan; graduated M.D. at the University of Pittsburgh School of Medicine, 1912; interned at the South Side hospital, Pittsburgh, 1912; established a general practice in 1913. He was surgeon for the American Red Cross in Russia, 1914-16; Major, U. S. Medical Corps, 1917; Lieutenant Colonel, U. S. Medical Corps, 1919—serving 22 months in this country and in France with the 103rd Sanitary Train, 28th Division, as C. O. Field Hospital No. 112, and as Director, Field Hospital, 103rd Sanitary Train. He was Medical Director at the Mount Alto State Sanitarium for Tuberculosis, 1919-20; and on December 1, 1920, became Medical Director for Westinghouse. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; and his memberships include the A.P.H.A., the Westinghouse Valley Medical Society, and the American Heart Association. He was a member for many years of the Conference Board of Physicians in Industry. He has written extensively on industrial medical subjects, especially regarding tuberculosis prevention; and he is a national authority on matters relating to the control and prevention of industrial health hazards. He is on the staff of the Braddock General hospital at Braddock, Pennsylvania, and the Pittsburgh Diagnostic Clinic; and a member of the Public Health Committee of the Pittsburgh Chamber of Commerce. He was President of the A.A.I.P. & S., 1941-42. He is professor of Industrial Medicine at the University of Pittsburgh Medical School—in the first separate department of industrial medicine established in a medical school in this country He was a member of the committee appointed in June, 1940, to cooperate with the Division of Industrial Hygiene of the National Institute of Health, from which have developed the several advisory and sub-committees on industrial medicine now identified with the war effort.

EDWARD P. HELLER, M.D., Kansas City, Missouri, A.A.I.P. & S. Director, 1943-45, is Surgeon for Socony-Vacuum Oil Company, Kresge Stores, Burling-

Robert A. Kehoe

Carey P. McCord

Fenn E. Poole

William A. Sawyer

ton Transportation Company, Burlington Trailways, Adams Transportation Company, and a number of casualty companies, including Aetna, Great American, Zurich and Continental. Since 1923 he has been Division Surgeon and Examiner for the Chicago, Burlington & Quincy Railroad. DR. HELLER was born in Allentown, Pennsylvania, in October, 1892; graduated in medicine at Jefferson Medical College, Philadelphia, in 1916. During World War I he served in the A.E.F. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; a member of the American Association of Railway Surgeons, the Southwest Clinical Society, the Kansas City Surgical Society, the executive committee of the Research Hospital, and the executive staff of the Kansas City General Hospital—where, for 10 years, he has been on the orthopedic service. He was cofounder of the A.A.I.P. & S. component, the Association of Railway and Industrial Surgeons of Kansas City, and is now its President. He has had extensive experience as editor, publisher and author; his contributions, particularly on surgical subjects, have appeared in *J.A.M.A.*, *Annals of Surgery*, *International Clinics*, a number of the state journals, INDUSTRIAL MEDICINE, and other important periodicals since 1920; abstracts were included in the Year Book of Surgery in 1927, '29, '32, and '33; in 1940 the Year Book of Neurology, Psychiatry and Endocrinology abstracted his "Hyperparathyroid Disease" from INDUSTRIAL MEDICINE; and in Dennie's book on Congenital Syphilis, published in 1940, he has a section on differential diagnosis between fibrocystic disease due to syphilis and due to parathyroid disease.

ROBERT A. KEHOE, M.D., Cincinnati, Ohio, A.A.I.P. & S. Director, 1942-44, is Medical Director for the Ethyl Corporation—so appointed in 1925. Since 1930 he has been Director of the Kettering Laboratory of Applied Physiology, University of Cincinnati. DR. KEHOE was born at Georgetown, Ohio, in November, 1893; attended Ohio State University, 1914-15, graduated at the University of Cincinnati, B.S., in 1918, M.D., in 1920. He was pathologist at Cincinnati General Hospital, 1919-20, and at Jewish Hospital, 1920-24; Assistant Professor of Physiology at the University of Cincinnati, 1920-31, Associate Professor, 1931-38, and has been Research Professor since the latter date. He is a Fellow of the American Association for the Advancement of Science, the A.M.A., the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, and the A.P.H.A.—where he has been Chairman of the Committee on Lead Poisoning of the Industrial Hygiene Section since 1939; and his memberships include the American Chemical Society, the Central Society for Clinical Research, the A.O.A., the Ohio Academy of Science (he was Vice-President in 1934), the Cincinnati Academy of Medicine, the American Physiological Society, and the American Industrial Hygiene Association (of which he was a Director, 1940-43). He is a member of the Committee on Industrial Medicine of the National Research Council, and Adviser, Research and Development Branch, O.Q.M.G. Nationally outstanding as an authority on lead absorption, lead poisoning, and physiological research in industry, his presentations on these and related subjects are features of many scientific programs, and the publication—in *J.A.M.A.*, *J. Indust. Hyg. & Tox.*, *Surg. Gynec. & Obst.*, *Am. J. Public Health*, and other top-rank periodicals—of the studies and reports of which he is the senior author has gone far toward establishing the literature of occupational exposures on a scientific basis.

CAREY P. MCCORD, M.D., Detroit, A.A.I.P. & S. Director, 1942-44, is Consultant and Adviser on occupational disease and industrial hygienic problems for numerous industrial concerns, including the Chrysler Corporation, and Medical Director of the Industrial Health Conservancy Laboratories—with assignments as Consultant for industries, state and Federal bureaus, and medical, industrial and labor associations and organizations, in various types of investigations related to industrial medicine, factory sanitation, occupational diseases, industrial hygiene, etc.; in investigations of industrial substances and operations; in surveys of industries from the basis of hazards and hygiene; and in investigations of occupational diseases and outbreaks of the same. DR. MCCORD was born in Bibb County, Alabama, in September, 1886; graduated, A.B., at Howard College, Birmingham, Alabama, 1906 (LL.D., 1933), and M. D. at the University of Michigan School of Medicine, 1912. He was Instructor in Chemistry at Howard College in 1907; Assistant in Anatomy at the University of Michigan School of Medicine, 1910-11; Research Physiologist, Parke, Davis and Company, Detroit, and concurrently Research Director, Michigan Home and Training School, Lapeer, 1912-16. In the World War years he was First Lieutenant, U. S. Medical Reserve Corps on the Mexican border, 1916-17, and Captain (later Major) Medical Reserves, 1917-19; and he is now Colonel U. S. Medical Reserve Corps. His first industrial medical work was the investigation of skin diseases for the Baltimore & Ohio Railroad in 1920; he became associated with the Industrial Health Conservancy Laboratories in the same year. He is a Fellow of the A.M.A., the A.P.H.A., and the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, and his numerous memberships include the American Association for the Advancement of Science. He was formerly chairman of the Industrial Hygiene Section of the American Public Health Association, and a member of

Theodore L. Story

Harold A. Vonachen

Beverly G. Vosburgh

John J. Wittmer

the Executive Council, as well as of that Association's Committees on Lead Poisoning, Dusty Lung Diseases and Industrial Solvents; and he has been a member of the National Advisory Committee on Toxic Dusts and Gases of the American Standards Association, and of the Committee on Industrial Medicine and Traumatic Surgery of the American College of Surgeons. The vast amount of special work he has done includes numerous laboratory investigations in industrial toxicology, and the discovery of several occupational diseases theretofore unrecognized. He is the author of the textbook, "Industrial Hygiene for Engineers and Managers," and other major publications of book size, numerous chapters in books compiled by groups of contributors, and more than 500 scientific and semi-scientific articles. He was formerly Associate Professor of Preventive Medicine at the University of Cincinnati College of Medicine. "Who's Who in Industrial Medicine and Traumatic Surgery" notes that he is "distinguished for his early appreciation and application of laboratory and experimental methods to the problems of industrial medicine, and for the number and quality of his contributions to the literature of industrial medicine." His studies on light metals and on toxicological subjects are well known to readers of INDUSTRIAL MEDICINE.

FENN E. POOLE, M.D., Glendale, California, A.A.I.P.&S. Director, 1942-44, is Medical Director for Lockheed and Vega Aircraft Corporations. DR. POOLE was born in 1906; graduated M.D. at the College of Medical Evangelists in 1931; interned at Los Angeles County General Hospital, 1932; was resident in general surgery, same hospital, 1933-36; established his practice in general surgery at Glendale in 1936, and became affiliated with the Lockheed and Vega Corporations in 1938. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; and his memberships include the Hollywood Academy of Medicine, the Aero-Medical Association, and the Western Association of Industrial Physicians and Surgeons. He is Professor of Surgery at the College of Medical Evangelists; attending Surgeon, in chest and general surgery, at Los Angeles County General Hospital; and Sub-Chairman of the Nutrition Committee and Chairman of the Medical Subcommittee of the Aircraft War Production Council.

WILLIAM A. SAWYER, M.D., Rochester, New York, A.A.I.P. & S. Director, 1943-45, is Medical Director for the Eastman Kodak Company. DR. SAWYER was born at Lake City, Iowa, in May, 1884; attended the University of Pennsylvania, 1903-07; graduated M.D. at the University of Pennsylvania School of Medicine, 1913; interned at the Hospital of the University of Pennsylvania, 1913-15. He established a general practice, with special attention to surgery, in the latter year. His first industrial affiliation was with the American Pulley Company, at Philadelphia, 1917-19; this was followed by a year with the medical service of John Wanamaker in Philadelphia; and in 1919 he became Medical Director for Eastman Kodak Company at Rochester. He is a Fellow of the A.M.A., the A.P.H.A., and the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS. In the latter organization he has held the offices of Secretary-Treasurer, Vice-President and President. His memberships include the Tuberculosis Association of Rochester and Monroe County (of which he has been President), the National Tuberculosis Association, the National Organization for Public Health Nursing, and the New York State Society of Industrial Medicine (of which he has been Secretary). He was a member of the Conference Board of Physicians in Industry, and a member of the Committee on Industrial Hygiene of the Governor's Health Commission of New York State; and he is now a member of the Board of the Rochester Hospital Service Corporation, on the consulting staff of the Rochester General Hospital, and a lecturer at the University of Rochester School of Medicine. He was one of the group which organized the New York State Society of Industrial Medicine. He has written extensively on industrial medical subjects, particularly regarding nutrition, and he has done special work on the prevention of the common cold. "Who's Who in Industrial Medicine and Traumatic Surgery" notes that he is "distinguished for his application of scientific knowledge to employee health and for his early recognition of the importance of the diagnosis of tuberculosis in industry by serial x-ray examinations." At the A.A.I.P. & S. "War Conference" in Rochester, in May, 1943, DR. SAWYER was given the KNUDSEN AWARD for 1942-43 for his "outstanding work in the control of tuberculosis, constructive contribution to a practical program of nutrition in industry, and the establishment of a program of rehabilitation for handicapped workers in industry, and the pre-habilitation of those aspiring to work in industry."

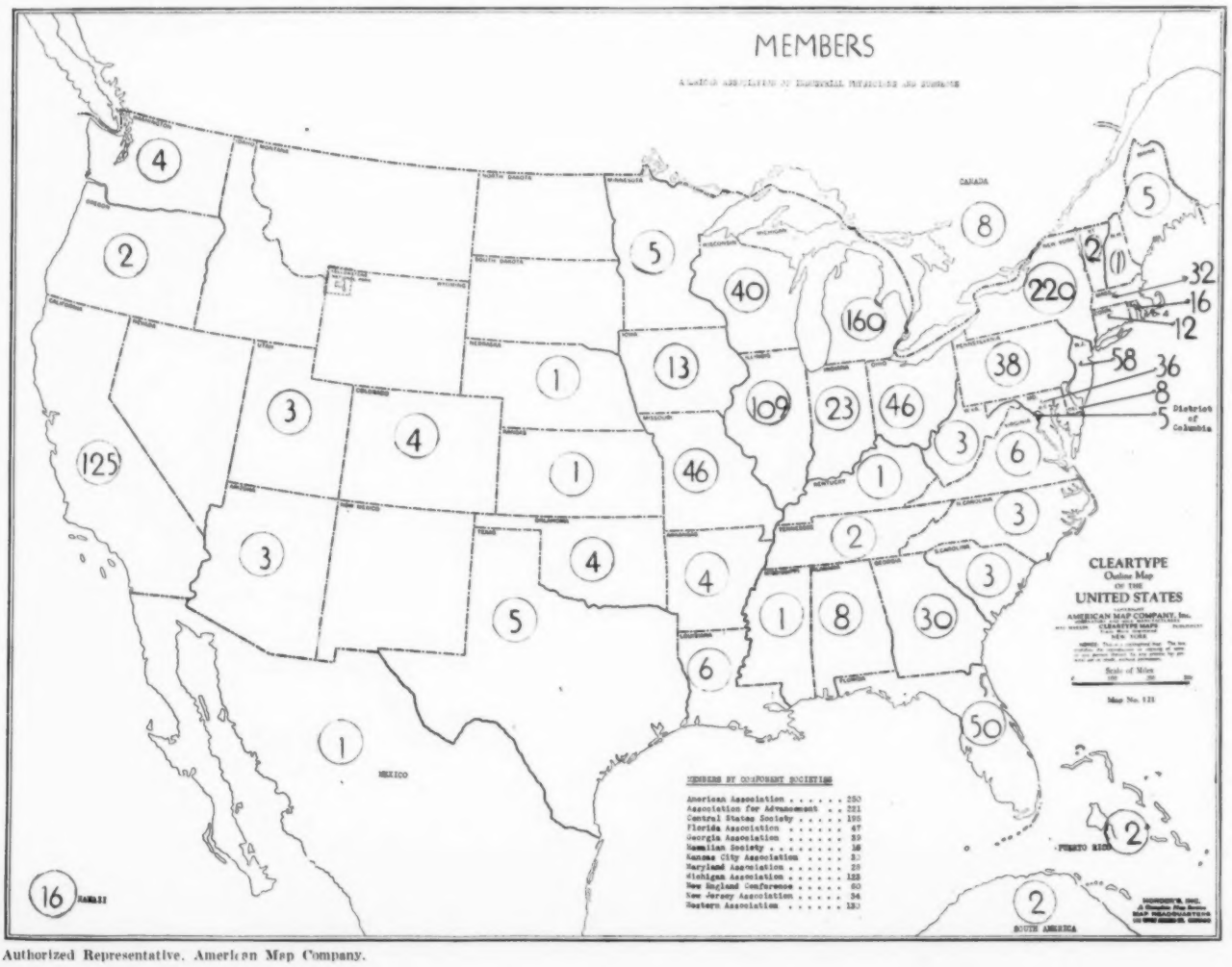
THEODORE L. STORY, M.D., Southbridge, Massachusetts, A.A.I.P. & S. Director 1943-45, is Medical Director for the American Optical Company. DR. STORY was born at Norwich, Connecticut, in June, 1888; graduated M.D., cum laude, at Tufts College Medical School in 1917; interned at Massachusetts Homeopathic Hospital, 1916-17; attended a post-graduate course at Harvard Medical School, 1924. In World War I he was a Lieutenant of Infantry, 1918-19. He established his general practice in 1922; his first industrial affiliation was with the Travelers Insurance Company during the period of his general practice; and he became Medical Director for American Optical in 1926. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; and

his interests include committee work in the local medical societies. He has been on the staff of Harrington Memorial hospital, and is a Past Commander of the American Legion.

HAROLD A. VONACHEN, M.D., Peoria, Illinois, A.A.I.P. & S. Director, 1942-44, is General Medical Director for the Caterpillar Tractor Company. DR. VONACHEN was born in December, 1899, graduated M.D. at St. Louis University School of Medicine, 1923; interned at St. John's hospital, St. Louis, 1924. He became identified with Caterpillar Tractor Company's medical department in 1930, and he is now also Medical Director for the Hiram Walker Distillery Company. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; one of the Board of Governors of the Central States Society of Industrial Medicine and Surgery, and a member of the Illinois State Medical Society's Committee on Industrial Health. He is on the staff of St. Francis Hospital, Peoria. In 1936 he organized the method of discovering and handling cases of syphilis among employees which has since been adopted throughout industry in general. His work in rehabilitation, and in the placement of handicapped workers, is outstanding. Elsewhere in this issue (page 24) is a picture of his exhibit at the 1943 annual meeting of the Illinois State Medical Society which well illustrates the scope and detail of the medical services for which he is responsible. He writes interestingly — though not often, is a forceful speaker, and possesses in a marked degree the faculty of arousing sustained interest in industrial health matters.

BEVERLY L. VOSBURGH, M.D., Schenectady, New York, A.A.I.P. & S. Director, 1943-45, is Medical Director for the General Electric Company at Schenectady. He was born in Nelleston, New York, in February, 1897; graduated A.B. at Union College, Albany, 1918, and M.D. at Albany Medical College in 1922; interned at Ellis Hospital, Schenectady, 1922-23; became Medical Director for the General Electric Company in the latter year. DR. VOSBURGH is a Fellow of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, and his memberships include the A.M.A., the Medical Society of the State of New York, the Schenectady County Medical Society, the American Public Health Association, and the New York State Society of Industrial Medicine of which he has been a Director). He has been a lecturer at Albany Medical College, and cardiologist for the City Hospital of the Schenectady Health Center; in 1936 he was appointed member of the Committee on the Prevention of Silicosis through Medical Control, established by the U. S. Secretary of Labor. He has published numerous articles on toxicological and industrial medical subjects.

JOHN J. WITTMER, M.D., Brooklyn, New York, A.A.I.P. & S. Director, 1943-45, is Medical and Personnel Director for the Consolidated Edison Company. DR. WITTMER was born at Brooklyn in August, 1895; attended Fordham University, 1916-17; graduated M.D. at Long Island College of Medicine, 1922; interned at Long Island College Hospital, 1922-23. In World War I he was Lieutenant Commander, U. S. Medical Corps. His industrial affiliations began with the Brooklyn Edison Company in 1923, and continued with the Con-


MEMBERS
CANADA
MEXICO
CLEARTYPE
Outline Map
OF THE
UNITED STATES
AMERICAN MAP COMPANY, Inc.
MEMBERS BY COMPONENT SOCIETIES
American Association 250
Association for Advancement . . 221
Central States Society 195
Florida Association 47
Georgia Association 39
Hamilton Society 16
Kansas City Association 30
Maryland Association 28
Michigan Association 123
New England Conference 60
New Jersey Association 54
Eastern Association 130
PUERTO RICO
SOUTH AMERICA
HAWAII
District of Columbia

Authorized Representative, American Map Company.

solidated Gas and Associated Companies until 1931, when he was appointed to his present position. He is a Fellow of the A.M.A., and of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS; and among his memberships are the Association for the Advancement of Industrial Medicine and Surgery (of which he has been Vice-President), the American Homeopathic Institute, the New York State Homeopathic Society and the Homeopathic Society of New York City. He is Assistant Clinical Professor of Preventive Medicine and Community Health at Long Island College of Medicine, and on the staff of Doctors Hospital, New York City and Prospect Heights Hospital in Brooklyn. He was at one time Secretary of the Conference Board of Physicians in Industry; and he was President of the A.A.I.P. & S. 1942-43. Along with DR. CASSIUS H. WATSON, also an alumnus, he was instrumental in the organization and conduct of the Post-Graduate Course in Industrial Medicine at Long Island College of Medicine last November. Among his special interests are several exhaustive analyses of the phenomena of absenteeism which have permanent importance in the study of the subject. His article "A Health Program in Terms of Results" (INDUSTRIAL MEDICINE, January, 1943) describes the Consolidated Edison medical service, which he directs.

Absence Due to Sickness

DAN L. LYNCH, M.D., F.A.C.S.,
Medical Director,
New England Telephone & Telegraph Company,
Boston

A GREAT deal of anxiety has been expressed and loud alarm sounded all over the country regarding the ill-effect of high absenteeism in industries essential for production for war. Admittedly absenteeism is higher in many industries than in peacetime. That it became suddenly pandemic concurrently with the tremendous expansion in industry from an era of depression and easy living to the period of the greatest industrial activity in all history, impelling the drastic dislocation of large fractions of the population, and involving complete change-overs in their working and personal habits and ways of life, should be recognized also. Unlike absenteeism due to epidemic disease, the present high absenteeism is of manifold causes and, therefore, more difficult to control. There is, however, good reason to believe, or at least to hope, that with the peak of production near at hand, sprawling plant expansion curtailed, new workers better trained, better placed and better adjusted to the routine of work, and employment conditions better stabilized, controls may be applied more effectively and absenteeism lessened appreciably.

I think the fact most to be deplored by persons interested in or concerned with the problem is that no reasonably accurate and easily maintained method of measuring absenteeism has been developed or has been generally adopted by industry. Much has been done in this regard by the U. S. Public Health Service, Industrial Hygiene Foundation and other groups, but much remains to be done throughout industry. It is difficult, therefore, to accept without reservation all of the huge estimates of days or hours lost from production by absenteeism or to agree without question that it has increased 56% or 100% throughout a large part of industry. It is unfair, in my opinion, to criticize severely either labor or management for absenteeism on the basis of figures which do not give proper weight to all of the factors involved.

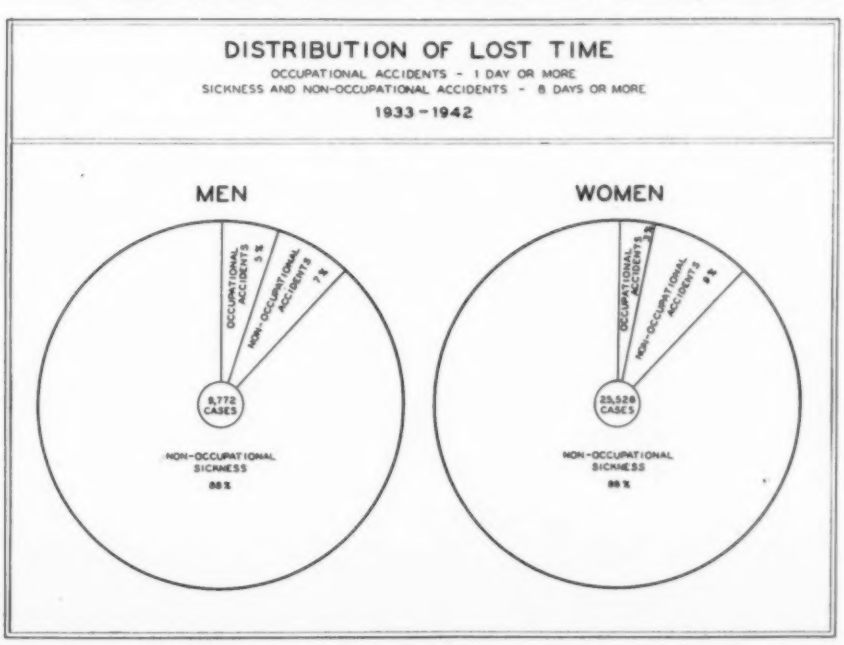


Chart I.

Whenever viewing or attempting to analyze statistics on absenteeism I have been impressed repeatedly and guided always by the preamble to the section on "Prevalence of Disease" which appears in the monthly Public Health Reports issued by the U. S. Public Health Service. It reads as follows:

"No health department, state or local, can effectively prevent or control disease without a knowledge of when, where and under what conditions cases are occurring."

Similarly no industry can control absenteeism effectively, nor can the health or medical department in industry aid effectively in the control of absence due to sickness, without a knowledge of when, where and why absence and sickness are occurring, a knowledge of the age and sex distribution of the employee personnel, and of the effect of wage payments, sickness insurance payments and sickness benefit plans on the frequency and duration of sickness absences, together with a knowledge of the health conditions in the community and other influencing factors.

Accurate records of absenteeism are of primary and paramount importance and should be interpreted under the light of the variables between industrial plants and populations and community factors by which they are affected.

THE causes of absenteeism can be grouped most conveniently under the major headings of involuntary and voluntary. The major sources of involuntary absence are sickness and accident disability.

Chart I illustrates the distribution of involuntary absence over a period of 10 years in a group of approximately 7000 men and 12,000 women in our company. Included in this data are all absences of one day or more caused by occupational accidents and diseases, and all absences of eight days or more caused

by non-occupational accidents and diseases or sickness.

The chart simply emphasizes the fact that employees, particularly in large industries, are better protected against occupational injury and disease than they are watchful of their physical well-being in their leisure hours. Off-duty accident disabilities are more prevalent among both sexes than occupational disability accidents and diseases combined. We cannot neglect here to speak with favor of industrial management which has spent so freely for safety means and methods, industrial hygiene engineering and adequate medical service that those who work in industry may do it safely.

The chart further emphasizes the fact that disability due to sickness unrelated to occupation is the chief source of involuntary absenteeism, that it is of equal magnitude for both sexes, that it explains 88% of the disability cases in each group, while off-duty accidents account for 7% of the cases among men, 9% of the cases among women, and occupational accidents and diseases only 5% and 3% respectively. I believe the problem is quite similar in industry generally. I will, therefore, endeavor to confine my remarks to absence due to sickness.

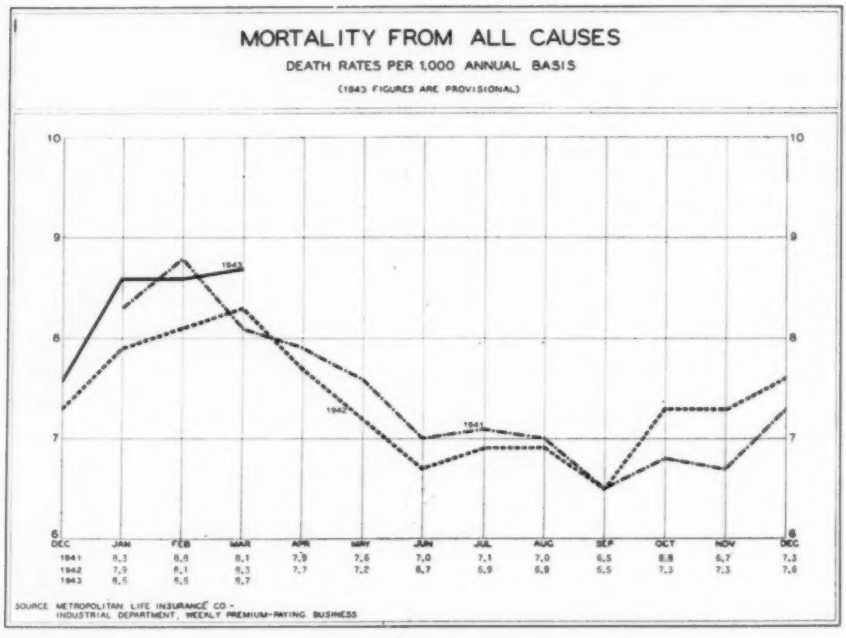

MORTALITY FROM ALL CAUSES
DEATH RATES PER 1,000 ANNUAL BASIS
(1943 FIGURES ARE PROVISIONAL)
10
9
8
7
6
1943
1942
1941
DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1941 8.3 8.0 8.1 7.9 7.6 7.0 7.1 7.0 6.5 8.8 6.7 7.3
1942 7.9 8.1 8.3 7.7 7.2 6.7 6.9 6.9 6.5 7.3 7.3 7.6
1943 8.5 8.5 8.7
SOURCE METROPOLITAN LIFE INSURANCE CO.-
INDUSTRIAL DEPARTMENT, WEEKLY PREMIUM-PAYING BUSINESS

Chart II.

BECAUSE mortality, which is absolute, may be regarded as a fair index of morbidity, although the ratio will vary with the severity of the diseases included in the morbidity rate, it may of interest to train our sights momentarily on mortality. As the mortality rate ascends, so also does the morbidity rate, and usually at an accelerated pace.

Discounting, as far as possible, deaths due to war injuries, the death rate in this country has crept slowly upward since mid-1942. The Bureau of Census of the U. S. Department of Commerce, reporting on data from 87 large cities, reveals an increased death rate for the year 1942 over 1941, and reports 147,923 deaths in the first 15 weeks of this year against 135,235 deaths in the same period a year ago, or an increase of 9.4% in the number of deaths.

Chart II illustrates the death rate on an annual basis as reported by the Metropolitan Life Insurance Company for its millions of industrial policyholders. The trend in 1943, reported as based on provisional figures, may be regarded as quite accurate by reason of its source. It is apparent from this chart, as it is apparent from the Bureau of Census report, that the death rate effected by industrial workers has increased appreciably since last September and especially in the weeks of 1943 that are behind us. In the group included in this mortality, deaths from enemy action increased from 5.2 in 1942 to 11.3 in 1943 per 100,000 persons. But deaths:

From influenza increased from 7.7 to 9.4;

From pneumonia, from 41.9 to 50.8;

From cancer, from 107.3 to 111.2;

From apoplexy, from 66.9 to 74.7;

From coronary heart disease, from 65.9 to 69.6; and

From chronic heart disease, from 179.7 to 197.2.

These are the diseases of civilian life and less so of men in the armed forces. The last four especially are diseases of the fourth and fifth and sixth decades of life, of the older workers more numerous in industry than before the war.

From this factual information it follows undeniably that disabling sickness has increased and that resulting involuntary absence is unavoidable.

In our highly industrialized Commonwealth of Massachusetts there has been a very marked increase in certain reportable communicable diseases in the first quarter of 1943 over the same period of the previous year.

Reported cases of German measles have increased 554%; of measles 61%; of epidemic cerebrospinal meningitis 367%; and of scarlet fever 41%.

Disabilities due to these causes are not altogether confined to children and have appeared frequently this year to explain sickness absence in our company. True it is that the mortality from measles and German measles and scarlet fever is low, but disability for work from these causes has been unusually high this year.

Upper respiratory infections and virus pneumonia are not reportable diseases in our state, but absences from work by reason of these causes likewise have been very high this year.

On the favorable side of the ledger reported cases of pulmonary tuberculosis decreased 9% this year from last year, and reports of other forms of tuberculosis decreased 3%. Among the 23,000 active and retired employees of our company only one death by reason of tuberculosis in any form was reported in the year 1942.

May I digress for a moment to make a comment regarding venereal disease. It may or may not be prevalent over the country and somewhere in industry. It may be concentrated in certain areas. I am not well informed. But in our Commonwealth of Massachusetts reported cases of gonorrhea had increased only 0.1% during the first 15 weeks of 1943 over the same period in 1942, and reported cases of syphilis had decreased 3%. So far as I am aware, and out of my own experience, venereal disease has not become a problem in industry. It is very easy to stir up a furore about venereal disease and dramatize the subject. One of our metropolitan papers recently featured a series of articles on the teen-age girl problem. In one of the articles the tremendous increase in venereal disease affecting these youngsters reporting at a public clinic was featured sensationally. I caused the records at the hospital to be inspected. Dependable information

regarding gonorrhea was not available, but the records disclose the following information regarding syphilis:

From January 1 to May 1, 1940, of primary and secondary syphilis there were 22 cases.

For the same period in 1941 there were 17 cases.

For the same period in 1942 there were 22 cases.

For the same period in 1943 there has been 21 cases of whom nine were females.

And out of these nine female patients, only one was a teen-age girl of 16 years, whose mother also was luetic. Another girl was 20 years, another 22 years. Misrepresentations or misinterpretations of such color cast doubt upon many of the reports of the state of health in our country as a whole; they malign the character of our boys in the service, I believe, and of young womanhood, and they could be of great comfort to our enemies.

We are all quite well aware of the fact that absence due to sickness is more frequent and of longer duration among employed women than it is among men in industry. Recognizing that fact, it was inescapable that absence due to sickness would increase as the number of women in industry multiplied and appreciably also as the number of men in industry declined. Due allowance for this factor should be made in every discussion or condemnation of absenteeism in essential war industry for, whether it has a biological or a purely psychological basis or no justifiable reason, it is, nevertheless, a fact and apparently an unalterable one.

Chart III illustrates the changing sex make-up of industrial and other non-farm labor in the United States as reported by the Department of Commerce. In March, 1941, approximately 10,100,000 of such employed persons out of a total of 37,300,000 were women. In March, 1942, the number of women had increased to 12½ million and the number of men had increased also by about two million. But in March, 1943, while the aggregate number of employed persons remained quite unchanged from 1942, the number of men had receded by nearly two million, or 6.5%, while the number of women had increased some 15% over 1942. In consequence of these changes, more drastic in some areas than in the country as a whole, the number of employed women had increased 41.5% by March, 1943, over March, 1941, and is continuing to increase, while the number of employed men in the same period shows a net increase of only 1.8%, has decreased in the last year, and will continue to do so at an accelerated pace, probably.

Chart IV was made to show the major causes of all absenteeism in the first quarter of this year in a group of 4250 women employees.

It reveals an average daily absence of 8.1%, but have in mind that no men are included in the tabulation, so that this figure is somewhat higher than it would be for the company as a whole. The absenteeism due to occupational accidents and long-term sickness and long-term non-occupational accidents was paid absence and the figures are dependable. Also dependable are the figures for personal reasons' absence over seven days, because such absence is subject to supervision. Less dependable would be a separation of short-term absences between those due to sickness and those due to personal reasons, because the excuses offered for day-to-day absence are known to be sometimes not factual. Yet these short-term absences add up to the largest factor in this absenteeism. Together these two causes explain 3½% of the total daily 8.1% absence among this group of women.

At the present time employees absent for seven days or less are required to make out and sign a small form reporting the reason for that absence. It is our hope that this record and the supervision devoted to it will give us a reasonably accurate explanation of short-term absences and will, best of all, afford our medical department an opportunity to contact the employee who is frequently absent by reason of minor illness which may be corrected, or which may be an early evidence of a more serious trouble that might be controlled.

If we subdivide the total absence by its major causes, as in the pie chart, we again find that 43% of it is caused by the short absences due to sickness and personal reasons, that 22% of it is due to long-term personal reason absence, that 33.1% is due to long-term sickness, and only 1.9% due to occupational accident and disease.

This chart also emphasizes, in my opinion, the chance for error in rash statements regarding high absenteeism, and in making comparisons between plants or industries without a careful analysis of all the factors. We know that many of the women involved in this long-term personal reason absence are excused from work for periods of two weeks to several months. They are not expected at work. They may be at distant points visiting husbands or relatives in the armed forces, they may have been loaned to the government for special service, they may even be pregnant. But in order to preserve their seniority rights it is necessary that they be counted as active employees absent on furlough. If their number could be eliminated from the total number of absentees, absenteeism would appear quite different from what it does at present. It is probable in other plants, as I know of it in one plant, that a housewife who agreed to work only five days each week was marked absent for the other two days.

It is obvious that if absenteeism is to be properly measured and controlled a uniform definition of absenteeism should be adopted by industrial establishments and records maintained that are comparable and that lend themselves to practical analysis. Numerous conditions will be found to exist which make some absences seem unpreventable, while analysis may reveal that even some of these could be controlled. In other cases satisfactory reasons or specific causes

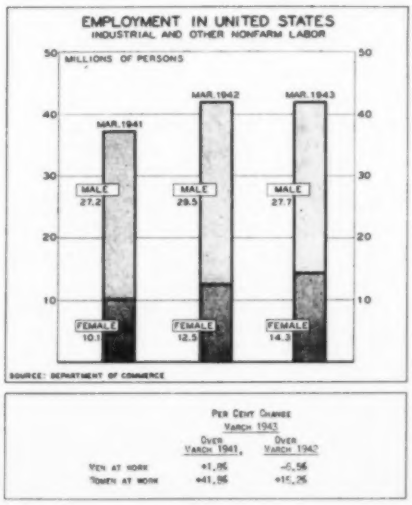


Chart III.

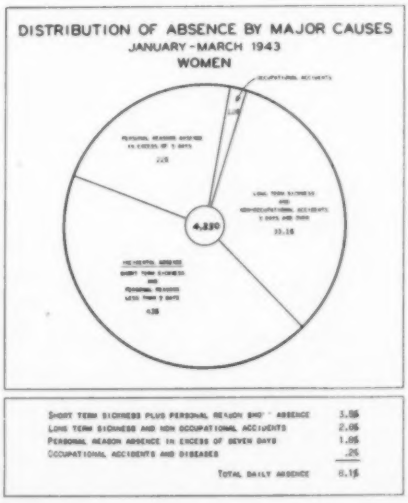

DISTRIBUTION OF ABSENCE BY MAJOR CAUSES
JANUARY - MARCH 1943
WOMEN
4,250
SHORT TERM SICKNESS PLUS PERSONAL REASON SHO ' ABSENCE 3.8%
LONG TERM SICKNESS AND NON OCCUPATIONAL ACCIDENTS 2.6%
PERSONAL REASON ABSENCE IN EXCESS OF SEVEN DAYS 1.8%
OCCUPATIONAL ACCIDENTS AND DISEASES .2%
TOTAL DAILY ABSENCE 8.1%

Chart IV.

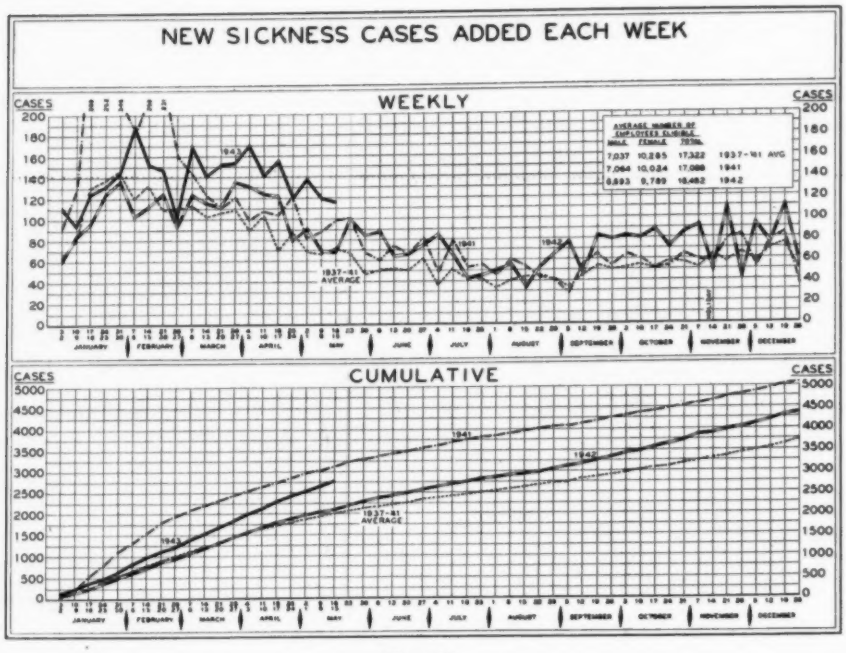


Chart V.

cannot be singled out, and the problem becomes one of morale from the head office down to the bench.

Chart V is a visualization of sickness disability cases lasting eight or more days added weekly to the company's Benefit Plan through which payments are made at the rate of full pay extending over an increasing number of weeks, depending upon length of service. In many of the cases full pay continues from the first day of absence. Consequently, this picture is about as dark as you might find it anywhere.

We all know that sickness is seasonal. In our New England climate respiratory diseases, especially, cause high absenteeism in the first third of each year, then subside and contribute less to the total of absence until late in the fall when again their effect is noted. The norm of absence is illustrated in this chart by the broken line. Proper consideration should be given to this seasonal trend of sickness when preaching about absenteeism because sickness that is actually disabling may be nearly three times as high in mid-winter as in mid-summer, in New England anyway. In other words, the tune of the song should be pitched to the season of the year.

You will note that in January and February, 1941, when mild influenza or grippe was very prevalent in the North Atlantic area, long-term sickness cases in our company were more than double the number of cases in the same period this year even though this year, too, is a year of higher cases than normal.

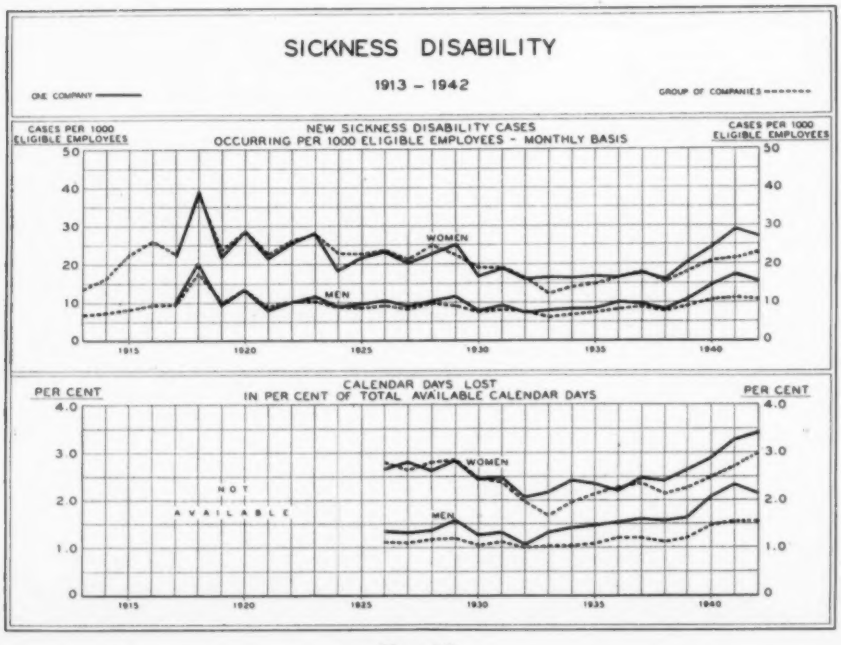


Chart VI.

You may note also the significant fact, illustrated by the solid black line, that high sickness absence has persisted this year for a much longer period than in any of the preceding five years. It is very likely due to a number of factors. Many employees are working a six or seven-day week against five days formerly. We have had a very long and very hard winter in New England. We have had no spring weather. It is said freely that we have been tossed around unreasonably by OPA and other agencies, that New England is not now a part of the U. S. A. Our homes have been uncomfortably cold; it has been difficult, at times impossible, for many of us to get sufficient food of the proper values; and private transportation has been severely curtailed and public transportation crowded. The drastic dim-out is depressing. Contradictory and confounding advices and directives from Federal and local agencies and their bunglings have confused us. Some families and many individuals truly have suffered severe hardships, many others perhaps have been annoyed and inconvenienced greatly, while the daily press has done a grand job toward convincing all of us that we have been abused and pushed around unjustly and unfairly. Toward avoiding physical and nervous illnesses and absence neither the weather nor the politicians favored us this year. But in spite of them New Englanders generally have kept faith with the armed forces, and peak production in this great industrial centre has not suffered.

Chart VI records a 30-year history of long-term sickness disability under the Benefit Plan in our company. The solid lines represent a group averaging about 10,000 women and 6000 men, the broken lines several hundred thousand persons of each sex in a group of similar companies.

Looking back over the 30 years, this chart illustrates that sickness cases and absence due to sickness have been persistently higher among women than for men. There is no good reason to be optimistic for a modification of this performance in the near future or because we are engaged in war. Owing to the rapid and increasing influx of women into industry and the declining number of men in industry, an increase in the over-all figure of absenteeism due to sickness seems unavoidable and the increase resulting from a higher ratio of women is not fair ground for criticism or harangue, in my opinion. It should be accepted and provided for.

May I call to your notice the upward trend in all of the curves in the last few years, the broken lines representing the entire group affected, of course, to some degree by the solid lines representing one company in the group. This trend is due to several factors—an actual increase in sickness disability, a marked disproportion of older men especially, and to some extent of older women in the one company group, and a generous liberalization of payments in the last three years, even from the first day of absence, to employees in the company represented by the solid line.

These trends suggest that a higher absence due to sickness must be expected now that more older persons than formerly are employed in industry, and that uninterrupted income encourages absence for mild disability and affords opportunities for better convalescence as well as for truancy.

Chart VII illustrates the fact that the frequency of long-term sickness absence increases with advancing age rather impressively among men. At least it has so occurred in the group of about 7000 men included in this chart. I believe that this unfavorable influence on absenteeism by the higher ratio of older men now employed in essential industry should be given proper weight in every discussion of absence due to sickness.

This chart very forcibly depicts the increasing incidence of sickness absence as young men become old men. In the year 1941, for example, represented by the last column in each age group on the left of the chart, you will notice that there were 108 cases per 1000 men in age group 20-29 years. The number of cases per 1000 men then progressively increases to 226 per 1000 men in the age group from 40 to 49 years, to a high point of 344 cases per 1000 men 60 years of age and over. How true it is that the spirit is strong but the flesh is weak.

On the right of the chart are similar data upon the age factor as it affects sickness absences among women. It is less impressive than the data for men. Again viewing the year 1941, there were 280 cases per 1000 women under 25 years of age, more than 2½ times the frequency rate among young men. From 25 years to 55 years advancing age does not appear to be a deciding factor in absence frequency among women. But the frequency is only a little less than twice that among men in similar age groups. It is a difficult matter to explain satisfactorily; it is some

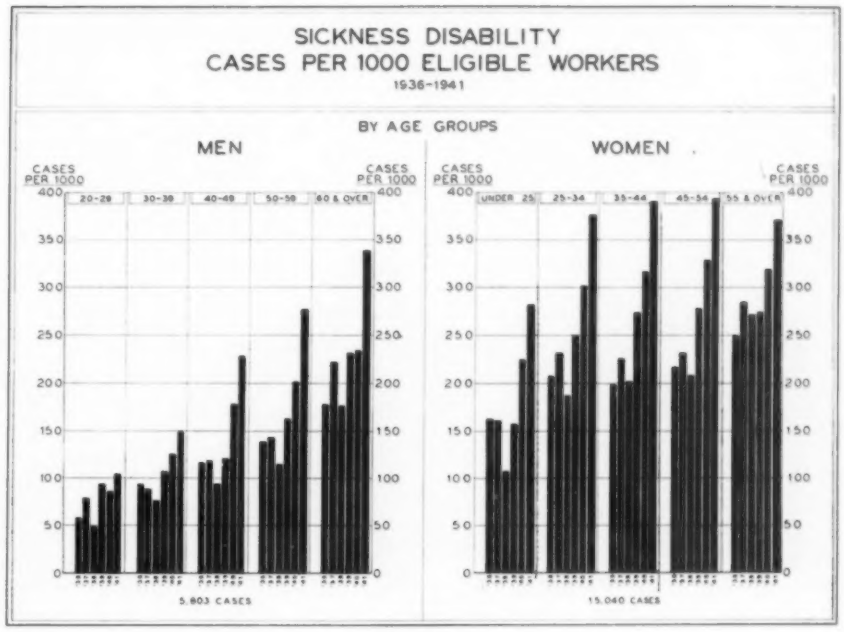


Chart VII.

evidence that women's place is in the home and not in industry; it is some evidence of frustration and of indulgence on the part of management, in my opinion. It is strikingly interesting to note that when women pass the age of 55 years, however, they head into the sunset of life with almost the identically same frequency of absence due to sickness as we old codgers, who continue to hang on at 60 years or more, 349 cases per 1000 women, 344 per 1000 men.

Chart VIII is quite similar to the previous one. It re-emphasizes the statement that the more heavily weighted employment becomes with older men, the more lost time due to sickness is inescapable. Young men in the 20-29 year age group lost 0.84% of their available time in 1941; men 40 to 49 years of age 2.24%, while men 60 years of age and over lost 5.27% of their available work time because they were too ill to work.

In the previous chart it appeared that the age factor did not materially effect the frequency of absence among women. That it does effect the severity of their illnesses, and their ability to make a comeback, and prolongs their convalescence from sickness as it does the male is illustrated in the last column in each group on the right of this chart. Young women under 25 years of age lost 1.91% of their available work time in 1941, women between 35 and 44 years 3.55%, and women aged 55 years or more were absent 5.49% of their work time, as they were too ill to work.

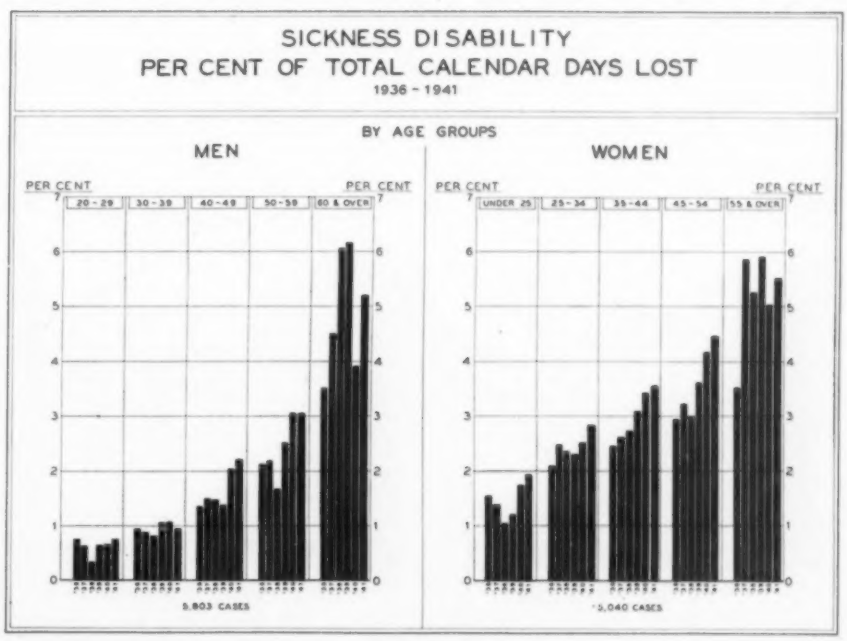


Chart VIII.

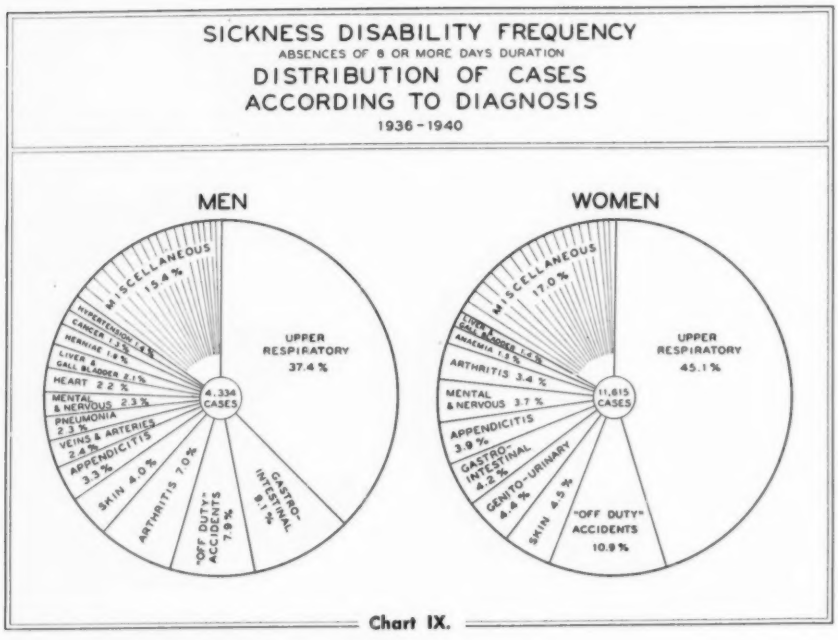


Chart IX.

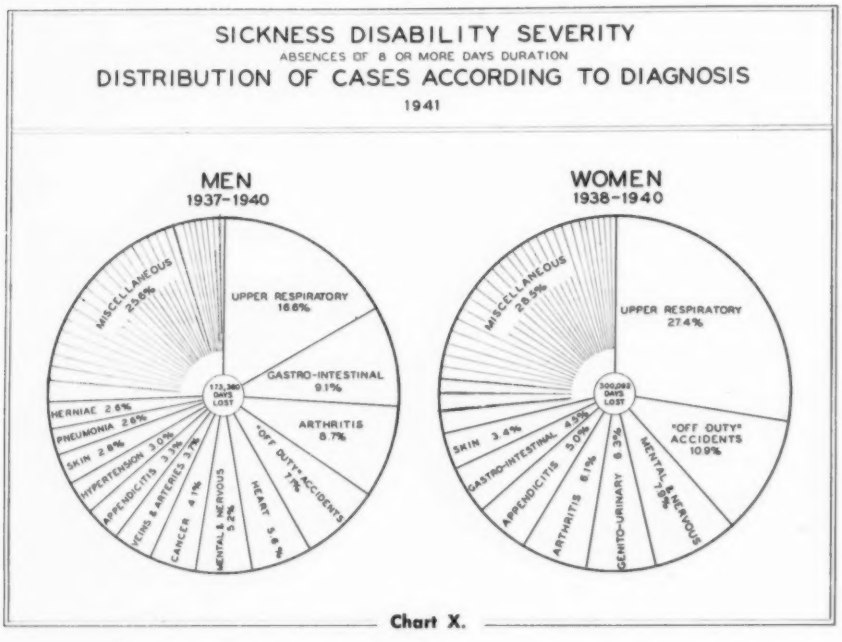


Chart X.

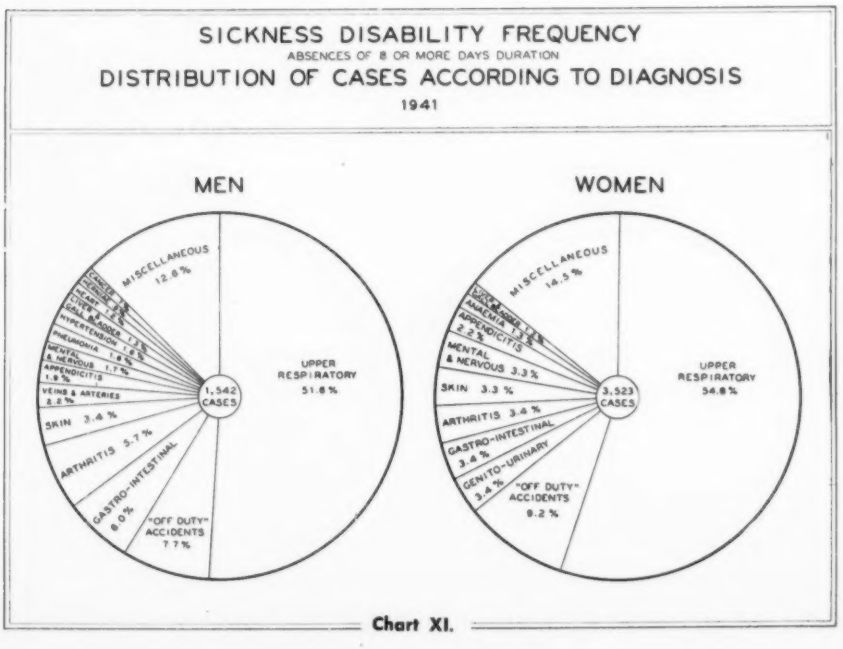


Chart XI.

Chart IX shows the distribution of a large number of sickness cases lasting eight days or more according to frequency of diagnosis. In our area anyway, the respiratory infections are the most frequently reported causes for sickness absence for both sexes, explaining about 37% of the absences among men and about 45% of the absences among women. They are the thorn in the side of industry and of industrial medicine, and they seem to be resistant to any of the several methods of attack so far suggested, whether they are health education, vaccines, vitamins or other forms of medication, or better working environments. Usually when we feel that we are accomplishing something by one or other of these methods of attack we find that respiratory diseases are fewer in the community as a whole anyway. Perhaps if we became heretics medically and reverted to the practice of our ancestors of shutting out the night air and the rain and the snow from our sleeping room, or changed winter into summer by ultra-violet radiation in our plants, as it is practiced in England, we might get somewhere in the control of absence due to respiratory disease.

Chart X is an illustration of the severity of absence due to sickness of certain causes. As the previous chart suggested, respiratory diseases cause more lost time from work than any other group of diseases, although case for case they are of shorter duration. Notice the large fraction of time lost by women by reason of off-duty accidents and by reason of nervous and mental illnesses. As the war goes on and civilian life becomes more complex and disturbed and difficult, these latter illnesses will increase in frequency most likely. Notice the large fractions of time lost by men by reason of gastro-intestinal disturbances, and by both sexes by reason of arthritis. These are generally the disabilities of advancing age.

Chart XI reveals the happenings in a year of epidemic grippe or so-called influenza. The year 1941, as noticed from a previous chart, was such a year. From a norm of 37% for men and of 45% for women, respiratory diseases in 1941 caused nearly 52% of sickness cases among men and nearly 55% of cases among women, more than all other diseases combined. Notice again the large fraction of cases for both sexes due to off-duty accidents. People do persist in getting hurt, most frequently at home.

Chart XII is also an illustration of distribution of lost time due to

sickness in the grippe epidemic year of 1941. Although the frequency of the disease increased severely for both sexes, the ratio of lost time to all lost time did not increase correspondingly.

Chart XIII is an illustration of the much talked about Monday absence. In the five-year period, 1936 to 1941, shown in this chart, 40% of the men and 30% of the women who suffered long-term, over seven-day sickness absences, began that absence on Monday. Neither drinking nor carousing or other misbehavior nor payday fully explain that circumstance, because absences attributable to such causes are not long-term absences to any such degree as this. I suspect that some of these persons would have been less ill if they had ceased work earlier.

Chart XIV illustrates the long standing habit of returning to work on Monday to begin the week right, it is said, rather than returning when able to work. In this study of a five-year experience, nearly 70% of all men absent by reason of sickness returned to work on Monday and more than one-half of all the disabled women elected to do the same thing. It is a pernicious custom that has continued for years, that accounts for the wasting of much productive time, that has been attacked for years by physicians in industry ineffectually, that is a responsibility first of the private physician who encourages it, next of labor and then of management. Punitive measures by denying payments will not solve it. Its solution should be a "must" for labor-management committees.

These last two charts illustrate human weaknesses which have persisted over the years and which have quite defied correction, but which, nevertheless, contribute to much of the absenteeism in industry. Only a good leader, or foreman, or supervisor can solve the Monday habit.

WHAT has been said with reference to long-term absences due to sickness may be repeated in large measure regarding short-term sickness absence. Many of the causes are the same, especially the respiratory diseases, while fatigue and maladjustment breed mild functional neuroses justifying absence.

For six or seven years the bureaucrats in our centre of government pounded out the philosophy that no one should work more than 40 hours or 35 hours a week. Work even less, if possible, it was said, and produce lightly to spread the work. To change violently from this fantastic Utopia of easy living and irresponsibility to a work week of six or

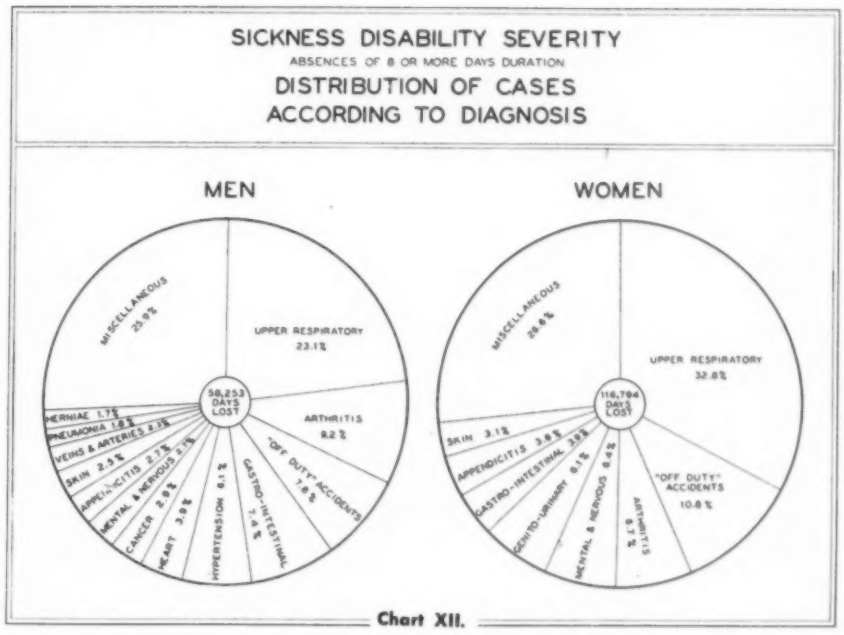


Chart XII.

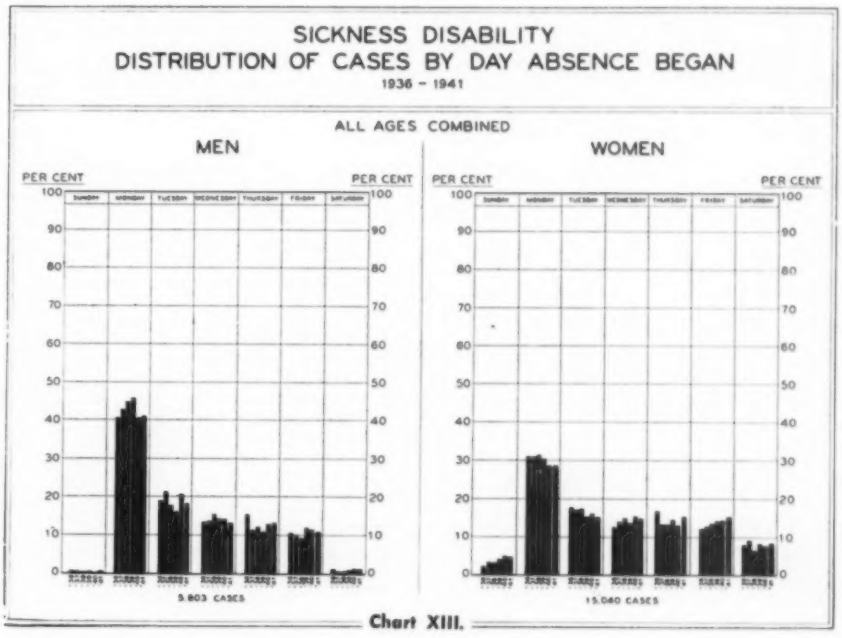


Chart XIII.

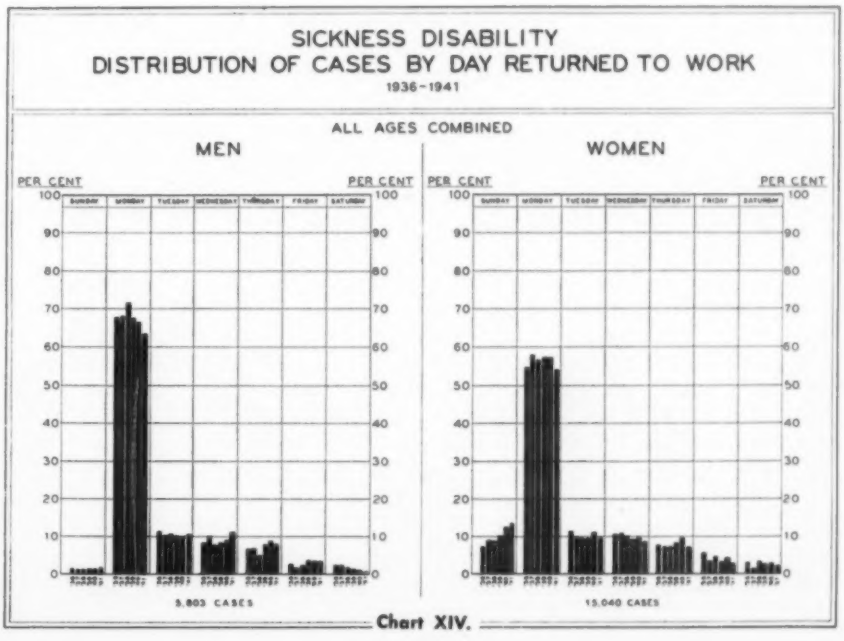


Chart XIV.

seven days and 50 or 60 or more hours at maximum production is not easy of achievement. Human nature does not change so rapidly, and, the dreamers having taught it to loaf, it is difficult for management now to unteach it. Retribution is inexorable, and they that encouraged idleness must be repaid in kind.

If you ride the crowded street cars or trains frequently, as I do, and observe the rows of men and women in their working clothes grimy with the dirt of shipyard or factory work and perspiration and nodding sleepily, you must believe with me that these persons are tired. It is especially so when they work long hours or unusual shifts day in and day out, week after week. They cannot well escape the minor illnesses and especially that state of nervous exhaustion which demands and justifies a brief rest from work.

We recognize the absolute necessity that the training of our fighting men must be punctuated by days of rest and furloughs to maintain physique and morale at a high level. Our top generals have their inspection trips around the country even across the seas, necessary of course, yet providing a break in the humdrum routine of work and something of relaxation. Few of us criticize the Congress that rolls up a 20% absenteeism and votes itself a vacation in the midst of war while only passing notice is given to our Vice-President's play at tennis in South America.

Let us be fair. Let there be less criticism of the men and women who are doing their best with patriotism and loyalty to keep production humming. The sick we will have with us always. As we go forward to victory the floaters and the chisellers and the drones in the beehive will be weeded out when industry hits its stride and management is permitted to manage its business.

Let us recognize an understandable development and do our utmost to minimize its unfavorable effect by good example, by encouragement of the worker, by leadership and by good medical service.

Unusual Findings

—In Pre-Employment Examinations—

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Douglas Aircraft Corporation,
Santa Monica, California

PHYSICAL examinations of individuals applying for employment in industry are objective rather than subjective. When pathology is found it is usually more of a surprise to the applicant than to the examiner. Formerly, applicants for work in the aircraft industry were usually young males. In the past year the picture has reversed itself, and to this there has been added an increasingly greater number of older men and women. Still more recently, in the past few months, younger individuals of high school age are being employed. Thus in the course of one year many thousands of individuals of both sexes ranging from 16 to 76 years have been examined.

Scope of Examinations

THE examination of each applicant embraces a "strip" physical, including a pelvic examination for all but unmarried females. Smears are taken where indicated. Special eye examinations for visual acuity, Keystone testing, color testing using standard methods and charts are performed. A routine flat-plate x-ray of the chest is made for each individual and, when indicated, x-rays of other areas where pathology is suspected. A routine Kahn blood test and a hemoglobin and blood cell count are made for all applicants. A urine analysis is completed for all males. Females do not have a routine urine analysis made unless the examiner orders this specifically.

Qualified Employment and Rejections

REJECTIONS for employment have decreased from several per cent a year ago to less than 0.5% now. Qualified and limited employment has been substituted in place of rejection. With this procedure, the acceptance of a potential hazard in physical disability as well as inability, is inevitable. Conditions now prevailing indicate an acceleration in the employment of individuals with substandard physical findings.

In accepting an individual for qualified employment, due consideration is given to the hazard he or she creates by reason of the disability as well as the personal hazard the occupation offers. Regardless of the care used in placing the new employee, and especially the one with a physical disability, we are experiencing a great deal of difficulty by reason of the numerous requests for transfer from one job to another.

Clinical Observations

THERE are a few general observations which are apparent to every industrial examiner, but these are not always of the usual variety:

OBESITY: When obesity is not complicated by cardiovascular disease, it has proved to be acceptable in younger individuals. It is a distinct hazard on the production line. Slow, awkward movements are dangerous. In older individuals in general, moderate to severe obesity has proved to be a personal hazard.

HYPERTENSION: Applicants have been accepted with systolic pressures as high as 170 and diastolic pressures of 110 where no demonstrable myocardial or renal insufficiency was associated. There have been two instances of cerebral hemorrhage in this group. There are several hundred employees with elevations of blood pressure as high as these figures. Of the two cases mentioned, one was a 72 year old female who sustained a right partial hemiparesis during her first four hours of work. The other was a male age 46 years who developed a partial aphasia without motor impairment.

VALVULAR HEART DISEASE: In younger individuals where there is no myocardial insufficiency associated, this condition has not been considered a basis for rejection. There has been no instance in which this has been the cause of absence or complaint to my knowledge.

ARTERIOSCLEROSIS AND MYOCARDIAL DISEASE: The degree of pathology and impaired physiology is difficut to determine from an objective examination. If there is no evidence of gross disturbance, employment has been allowed. In this group of older individuals, physical breakdowns are occurring more frequently. Two deaths from myocardial failure have occurred. The number of employees in this group is increasing rapidly.

CORONARY ARTERY OCCLUSION: There have been six cases of coronary thrombosis, with two deaths from this cause. The youngest is a male 29 years and the oldest a male 64 years. These types of cardiovascular disease offer industry a big headache. Conditions indicate it will become more acute before it improves.

VARICOSE VEINS: The existence of moderate or severe varicosities is a basis for rejection. In many instances the individual has had venesectory or injection treatment and has then been employed. Male employees

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seldom make complaints because of varicosities. All complaints to date have been made by female employees.

HERNIAE: Smaller herniae, retainable by a prosthetic appliance, have been accepted. There has been only one instance where an individual so employed has offered any complaint. The individual coming from a sedentary job and older men who have relaxed inguinal rings are the source of trouble. There is an average of five to six cases of hernia reported each week. There are 16 cases of females complaining of herniae. Two of these have inguinal, three have femoral, six have unbilical, and four have ventral herniae. One man, age 43, presented himself for employment with a postoperative ventral hernia, incarcerated, which contained at least three-fifths of his intestinal tract. He was not employed.

PELVIC DISORDERS: Cystocele rates as the number one problem, inasmuch as the individual disclaims any symptoms until after employment. The increased physical effort soon causes the employee to report because of frequency of urination and prolapsus. Frequently incontinence is the complaint. In several cases, absence has been due to the employee seeking surgical repair of the neglected disability. When the cystocele is large or moderately large rejection is in order until repair has been effected.

Fibroid and ovarian tumors are the basis for rejection until removal has been effected. The percentage in the older group of female employees has been approximately 2%. The youngest individual found to have a fibroid tumor was 22 years old. Operation was performed and she was subsequently employed. Four instances of carcinoma of cervix have occurred.

Pelvic inflammatory conditions are found frequently in younger females. This has become a major problem.

Pregnancy is a basis for rejection and, after two months if employed, for resignation.

DERMATOSES: Applicants having demonstrable skin lesions are closely scrutinized. Rejections for this group are not numerous. A seborrheic diathesis seems to be the background for a large number of acute dermatoses developing after employment. Psoriasis has not been considered a basis for rejection. The occurrence of contact dermatitis after employment has become enough of a problem that a special dermatologic clinic is kept busy.

BONE AND JOINT LESIONS: When the physical examination or personal history indicates any lesion involving a bone or joint, an orthopedic and roentgenologic examination is made. Osteomyelitis, if not entirely asymptomatic and when the lesion is anatomically located where trauma may occur is a basis for rejection. There have been several instances of rejection for osteomyelitis. These routine studies have revealed two instances of myelomata, one of osteogenic sarcoma, and three of osteitis fibrosa cystica.

Numerous instances of unknown fractures have been demonstrated. One case in particular is interesting because employment was granted where the history indicated an open reduction two years previously for fracture of the right radius. Three months later the employee reported because of a flexion deformity of 60°. Examination revealed an ununited fracture with evidence of wide-binding, metal plate and screws, and also bone graft. This individual then admitted three previous operations.

Arthritis, especially of the spinal column, is a major problem because of the feature of aggravation and prolongation of relatively minor injuries. These are usually found after the individual is employed. Similarly, mechanically weak spinal structures with anomalous vertebrae are numerous. Spondylolisthesis, sacralization of vertebra, narrowing of intervertebral discs, old compression fractures and prolapsus nucleosus pulposa have all been revealed in several instances. More often than is desired, these individuals have been accorded employment before the true nature of their disability is apparent.

VENEREAL DISEASES: There have only been three cases of acute gonorrhea for which employment was refused. One instance of rejection for a primary luetic lesion is recorded.

A study of the laboratory records for the past 11 months reveals positive Kahn blood tests averaging 0.97% to 1.4% for males and 0.4% to 2.4% for females. For all colored individuals the percentage range was from 8% to 19.0%. The mean average for white males was .99%, white females 1.6%, and all colored people 11.56%.

The mean average of positive urinary albumin was .02% and glycosuria from all causes .01%.

BLOOD DYSCRASIAS: A comparative survey of hemoglobin determinations for over 1000 applicants was made for the purpose of ascertaining if there was a lower average for Southern California residents. All ages and both sexes were considered. The only factor used was whether the individual had lived in California for more or less than one year. Those individuals having less than one year's residence were charted as to geographic origin. Thirty-nine states, representing all major sections of the United States, Canada and Hawaii are represented.

The Sahli method of hemoglobin determinations was used.

The mean average of hemoglobin per cent for residents of California for over one year was 90.01%, and for those who have resided in the state less than one year 91.4%. The mean average for states in the deep south was 85.02%, and for the northern states and Canada was 93.03%. Hemoglobin determinations of 100% were comparatively rare in this series.

Numerous instances of secondary anemia were found. There were three rejections for leucemia and two for pernicious anemia.

CHEST X-RAYS: This is a subject for a separate report, and space in this article will only allow mention of some of the highlights.

Of the several thousand chest x-rays taken during 1942 the percentage of rejections for abnormal roentgenographic conditions was .018%. There were .01% of applicants who were employed with certain qualifications and who are rechecked at specified intervals.

The majority of the individuals rejected revealed evidence of pulmonary tuberculosis without calcific changes. The incidence of pulmonary fibrosis of a moderate to severe degree where the second and third zones were particularly involved was so frequent that 80% is a fair estimate. In the first six months of 1942 over 22% of chest plates revealed evidence of healed pulmonary tuberculosis while the last six months revealed 48%. This latter period had over twice as many persons represented. This represents the period of greatest influx from other areas. These individuals for the most part also represent the lower income groups from other states.

There have been four cases of active pulmonary tuberculosis hospitalized in the past six months. Time will tell the rest of this story. We have no record of the percentage of positive cases in the group rejected.

Under the part-time employment plan, high school students are being employed. There have been several hundred of these teen age individuals put to work. In this group, one would expect to find the largest group of normal plates. The majority of the plates taken so far reveal the picture of heavy peri-bronchial infiltration with numerous instances of calcific changes. More study is being accorded this subject.

Numerous anomalies have been noted in these routine plates. There were 33 instances of uni-lateral and 24 instances of bi-lateral cervical ribs recorded in 16,500 plates. Several times diaphragmatic hernia, eventration of the diaphragm and mediastinal neoplasms have been found. Bronchiectasis and bullous emphysema have been noted.

There is one case of carcinoma of the lung which occurred after the individual was employed, which was followed to a lethal termination.

Conclusion

INDUSTRIAL organizations today are facing an increasingly grave situation with reference to potential illness. The medical organization of the whole community must realize their responsibility in this task. Upon them to an increasingly greater degree will fall the burden of helping keep workers on the job and to lessen the hours of lost production. We will do our share toward this end, but we who are dealing directly with the problem recognize the need for the fullest cooperation of the entire medical fraternity.

Contact Dermatitis

—With Special Reference to Industrial Dermatitis—
—Preliminary Report—

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THE PURPOSE of this presentation is to call attention to a somewhat different viewpoint of contact dermatitis in general and of several different types of industrial dermatitis in particular.

The present day concept of contact dermatitis has been admirably stated by Sulzberger[1] and others. It is familiar to all and need not be restated.

A different viewpoint will be expressed in the present paper. This concept, while not exactly new, does challenge, or at least tends to modify, some of the present day ideas, both as to the causation and treatment of this great group of skin disorders.

It is a striking fact that a great many of the etiologic agents of industrial and of contact dermatitis are, in the true sense of the word, poisons. By a poison is meant any agent which introduced, especially in small amounts, into an organism may chemically produce an injurious or deadly effect. Thus many of the agents incriminated as a cause of contact or allergic dermatitis are, without any argument, poisons. These include the chromates, the alkaloids, the cyanides, the fluorides, the acids, the alkalies, arsenic, mercury, formaldehyde, and many others.

These substances are certainly poisonous if taken internally and in many instances are equally poisonous (to the skin) if contacted externally. The viewpoint of allergy has taken the stand that certain substances are primary chemical irritants, e.g., such chemicals will irritate, damage or destroy the skin of practically every individual if the exposure be of sufficient strength or sufficiently prolonged. This, I believe, is an accepted fact.

However, the viewpoint of allergy also assumes that sensitivity or hypersensitivity exists in cases of contact dermatitis where the average person shows no reaction to the irritant, but the sensitized person reacts vigorously to a relatively small exposure, e.g., low concentration of the irritant.

Actually, however, no one is able to differentiate morphologically between toxic and allergic reactions to the patch test unless the quantitative factor is taken into consideration. However, the concept of allergy is that the toxic reaction can be obtained in patients who react negatively, simply by increasing the concentration of the test substance. The allergic reaction, on the other hand, is evoked only in hypersensitive persons; increasing the concentration in such persons gives rise to a toxic reaction.[2]

As Schwartz[3] states, "A concentration of 1:1000 may produce a reaction in a person who is very sensitive, whereas 1:500 or 1:100 may produce a reaction in another person not so sensitive as the first one." This might be called a different degree of sensitivity by the allergist. It might also be called a different degree of toxicity by some.

Since this is so and since practically all of the exact causes of contact dermatitis are chemicals rather than proteins, as in other forms of allergy, it follows that the difference between toxic and allergic reactions is merely quantitative. One can, therefore, look upon contact dermatitis in any individual as a toxic reaction. It is true that this toxic reaction is produced by lower concentrations of the offending or reacting substance, but nevertheless it is a toxic reaction in that individual and differs in no discoverable manner—either by clinical, histologic or morphologic observations—from a toxic reaction produced by a more concentrated application of the offending substance. This is a fundamental concept which, it appears to me, has been lost sight of in the tremendous amount of work done on contact dermatitis.

Without comment it may be noted that antibodies have not been demonstrated with any degree of regularity in contact dermatitis or in drug sensitizations. Miescher,[4] in a study of the mechanism and nature of the factors which influence patch test responses, showed that there was a characteristic clinical and histologic picture of eczematous skin reactions. He further showed, according to Sulzberger,[5] that this picture was "produced, not only in allergic reactions in contact eczema (i.e., eczematous responses due to sensitization to simple contact substances), but that the same morphologic reaction also occurs regularly in eczematous skin responses to primary irritants, as well as in truly eczematous reactions, not only to simple compounds, but also to fungous and bacterial products." Miescher felt that in the individual processes in eczema, clinical and histologic eczema reactions should not be rigidly conceived as allergic, but at least one should consider the possibility of a simple primary irritant or bacteriologic effect.

Sulzberger[6] in a number of communications has stressed the point that "contact dermatitis, while certainly based on allergic sensitization, nevertheless differs in many important ways from classic anaphylactic urticarial, tuberculin, and drug sensitizations."

In the field of internal poisoning by gases from extremely volatile liquids, such as chloroform, carbon tetrachloride, benzol and similar substances, we have a somewhat similar analogy to contact dermatitis. No one doubts that the liver necrosis, kidney changes and other visceral involvement are due to a direct toxic effect of the volatilized liquid and subsequent inhaled gas. Yet only a few among the many exposed develop such toxic effects. Are we then to conclude that these individuals who die are allergic to a certain chemical? If so, then it is an extremely toxic form of allergy.

The idea that allergy or *hypersensitivity alone* is the *correct and only* explanation of those cases of industrial dermatitis due to contact with minimal amounts of the causative agent may be correct. Certainly it is generally accepted, and as yet no one has seriously challenged this viewpoint. Yet there are some observations which, while isolated and single, seem to have an important bearing on this subject. They are observations made by me and by others, which in some in-

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stances seem to strike directly at the heart of the problem and, unlike the purely allergic point of view, offer something definitely constructive to the whole subject.

The first observation which led me to challenge the purely allergic concept was a case of match dermatitis. This patient gave a history of gradually increasing sensitivity to matches over a period of many years. At the onset, seven or eight years previously, he had noted an eczematous eruption on the anterior right thigh beneath the trouser pocket. An extremely intelligent individual, he realized that the safety matches which he carried in this pocket were probably the cause of the cutaneous irritation. So he switched the matches to the anterior left trouser pocket, only to have the same type of skin reaction follow on the underlying anterior aspect of the left thigh. Living in a rather warm climate, he then switched the matches to a pocket in his shirt; again the same reaction occurred in the skin of the left upper part of the chest. Finally, he became so sensitive to matches that not only was he unable to carry them on his person, but he was unable to keep them in his household. Further, any attendance at social gatherings or parties where there was smoking and striking of matches would be invariably followed the next day by an erythematous papular dermatitis of the face.

It was at this point that the patient consulted me. He had already made his own diagnosis and confirmed it time after time. What he desired was some relief from his sensitivity. Patch tests certainly seemed indicated and were done and revealed a definite reaction to the heads of safety matches, to the sticks of the safety match, and above all to the striking surface of the match package.

All of the books on industrial dermatitis failed to give any information except that the cause in most cases was phosphorus sequisulphide. From the literature, however, it was found that copper salts are efficacious in quenching the flame from burning phosphorus.[7, 8, 9] For this reason a 1% solution of copper sulphate was prescribed. This was to be applied to his face before retiring on each occasion when he had been exposed to any striking of matches. This was done and the patient has reported complete relief from this simple procedure.

Certainly this patient was markedly sensitive to the irritant—in the language of the day he was highly allergic to matches. The old advice of avoiding exposure to the irritant was impossible as he was continually exposed in his everyday life.

Many instances of match sensitivity[10] have been reported in the dermatologic literature, yet I can find no instance of any similar successful treatment.

All our conceptions of allergy in the production of such an eruption have been based on the belief that once exposure occurred, little or nothing could be done to alleviate the condition. Of course this isn't exactly true, as laundry soap for bathing has long been advocated for the prevention of poison ivy dermatitis. Schwartz[11] attempted to nullify or oxidize the irritant by sodium perborate ointment, although its effectiveness was challenged by Shelmire.[12] The use of a 10% ointment of ferric chloride has been shown by Keeney to block an experimental poison ivy reaction.[13] Ferric chloride in 5% solution is probably the most effective remedy against the actual dermatitis from poison ivy. Its use, however, is interdicted because of the disagreeable and semipermanent brown to black staining of the skin which occasionally results from its employment.[14]

However, others have touched upon this problem from a somewhat different angle, possibly because they, too, either refused to be stopped by the allergic concept of causation, or wished to seek further as to the actual agent.

One of the earliest contributions to this problem was that of Obermayer[15] who found in his study on rubber glove dermatitis that the probable offending compound was sulphur-monochloride. The similarity of this compound to mustard gas gave rise to the idea of rendering it non-irritating by soaking the gloves in a 4% solution of sodium hydroxide.* This was successfully accomplished. Here, then, the probable irritant was ascertained and neutralized before contact. It would have been interesting, but only from an experimental standpoint, to know whether washing the hands of his patient with a weak solution of sodium hydroxide after exposure to non-treated gloves would have accomplished the same end.

In the discussion of Obermayer's paper, E. S. Lain mentioned the possibility of a somewhat similar causation of stomatitis from vulcanite dentures and the fact that immersing such plates in a weak alkaline solution overnight had been recommended.

Rattner,[16] in reporting a case of rubber dermatitis of the penis from a condom, was able to verify Obermayer's work. His patient was able to use, without irritation, condoms treated by soaking in 5% sodium hydroxide before use.

Schwartz and Andrews,[17] in investigating a case of dermatitis from rubber dress shields, were able to prevent the eruption by washing the new dress shields in a strongly alkaline solution of soap and soda ash (sodium carbonate), followed by rinsing in water and drying them. It would have been instructive if they, too, had attempted some measure of neutralization after the exposure had taken place. Those who have occasion to combat dermatitis from all types of respiration masks (industry, aviators, soldiers) might be helped by the above ideas on rubber dermatitis.[18]

In all of these instances there is proof of definite so-called allergic dermatitis, and further, there is relief or prevention of the condition by either one of two methods. The first, as exemplified by the case of match dermatitis, is the neutralization of the irritant after exposure has taken place. The second, as exemplified by the cases of rubber dermatitis, is the neutralization of the irritant before exposure has taken place.

Experimental Prevention of Sensitization

THESE clinical observations have to some extent been confirmed experimentally. While it is difficult or impossible to state the exact chemical irritant involved in cases of plant and weed dermatitis, yet this new aspect of approach to the problem may yield results. Helmke[19] found that primrose dermatitis was prevented if the exposed area was washed with a 25% ammonia solution within 15 minutes of its application.

In experimental sensitization of the skin, using 30% dinitrochlorobenzene in acetone, Haxthausen was able to produce a high degree of sensitivity. This appeared in most cases within two weeks after the first application of the chemical. However, it seems extremely important to note that if the area of sensitization was moderately frozen with carbon dioxide snow immedi-

*It is interesting that STOKES and BUSMAN as early as 1920 found that tubing reactions occurring from intravenous injections could be prevented by soaking the rubber tubing for six hours in normal sodium hydroxide solution followed by rinsing: STOKES, J. H., and BUSMAN, G. J.: Tubing as a Cause of Reaction to Intravenous Injection Especially of Arsphenamine. *J.A.M.A.*, 74:1013, April 10, 1920. BUSMAN, G. J.: Rubber Tubing as a Factor in Reaction to the Blood Transfusion. *J. Lab. & Clin. Med.*, 5:693, 1919-20.

ately after the application of the dinitrochlorobenzene, sensitization did not occur, and in some instances the freezing could be delayed as long as eight days and still prevent the development of the sensitivity.[20] This preventive effect occurred in 80% of the cases.

In the course of experimental sensitization of guinea pigs to paraphenylenediamine, Marquardt[21] was able to prevent sensitization by the injection of large doses of epinephrine during the period of sensitizing activity. Goldman[22] was able to prevent the development of cutaneous hypersensitivity to turpentine in guinea pigs by severe artificial fever reactions produced by the hypertherm.

Patch Tests

THE patch test has been widely used and widely discussed. Several practical points should perhaps be noted.

First of all, if the patient be tested in the acute stage of the dermatitis, false positive reactions, or at least reactions that are difficult of interpretation are frequently obtained.[23]

Secondly, cases of undoubted contact dermatitis due to a recognized specific agent may give negative patch test to such an agent.[24] This occurs especially in cases of dermatitis involving the eyelids and also axilla (Schwartz and Andrews[17]). In other words, cases of localized cutaneous sensitivity may exist (eyelids), or there may be other factors, as a changed pH of the sweat (axilla).

Thirdly, delayed reactions to patch tests are a further source of trouble and have been described in connection with paraphenylenediamine[25] (fur dermatitis) and nupercaine.[26] They have also occurred in experimental work.[27]

Fourth, we are told that patch tests are only of value and significant in contact dermatitis, yet Heimann,[28] in a study of health hazards in the fur industry, found in dealing with bronchial asthma that (1) scratch tests with paraphenylenediamine were negative, (2) scratch tests with animal epidermals were positive in only one case, (3) in four cases of asthma, three of whom had no active dermatosis and no past history of dermatosis, a *positive* patch test reaction to paraphenylenediamine was obtained.

Fifth, that untoward reactions to patch tests may occur has been emphasized by Epstein.[29]

The patch test, to my knowledge, was first used in 1888, the year Jadassohn received his degree of M.D. E. Treacher Collins,[30] the great English ophthalmologist, used it in cases of atropine sensitivity. Its widespread and almost universal use has made possible the detection of many and varied etiologic agents as causes of contact dermatitis. Because it is almost universally accepted as a means of determining external allergic sensitivity, it has led to a quest for relief of such conditions by specific desensitization—a measure which has not been singularly successful, with the possible exception of contact dermatitis due to plants. In fact, in the great majority of cases the only practical procedure has been to avoid exposure.

This latter procedure is accomplished with ease in such cases as lipstick dermatitis and many minor cases of nickel dermatitis, but in other cases such avoidance is impractical or impossible if the person is to carry on his usual work, e.g., dentists sensitive to nickel, or painters sensitive to turpentine.

There have been isolated reports of successful desentization to mercury (Jadassohn), formalin, ammonium persulphate, phenyl mercuric iodide (Kesten and Laszlo).[31] In case of the last chemical desensitization was accomplished by the local application of a dilute solution (1:100,000) for one minute daily, gradually increasing the time to 10 minutes. Later the concentration was increased to 1:5000 for five minutes.

Jansion and his co-workers[32] claimed to have desensitized cases of contact dermatitis, due to hair dye, soap, mustard, rubber gloves, emetine and vanilla. I have been unable to find any confirmation of this work.

Constitutional Reactions

IT IS NOT generally realized, but I believe that in the great majority of cases of contact dermatitis, especially if widespread, or even if localized and severe, constitutional symptoms of varying degree do occur. They represent, in my opinion, evidence of mild to profound toxemia from local absorption of the toxin and cannot be explained entirely on a purely allergic basis. Such instances occur in chrome dermatitis,[33] dye dermatitis,[34, 35] nail polish dermatitis, and in many other instances of contact dermatitis.

It has always been assumed that only the epidermis is involved in contact dermatitis, e.g., it is the shock organ. Yet the above clinical findings fail to bear out such an assumption. Experimentally, too, recent work has suggested that the hypersensitivity in contact dermatitis affects the corium as well as the epidermis.[36]

Diet

SCHWARTZ is practically the only authority on industrial dermatitis who makes note of the fact that a worker's diet has an influence on susceptibility to external irritants. He apparently believed that this acted in a chemical way by influencing the pH of the sweat. This in turn influences the ability or capacity of sweat, both in its action as a solvent on external irritants and as a neutralizer of external irritants. He explained this by suggesting that if a worker is exposed to an alkaline irritant and has a markedly acid perspiration, this would tend to neutralize the irritant. On the other hand, if the worker's sweat was alkaline, it would enhance the irritant action of the alkali.[37]

One also should note that in certain types of pigmentary disorders occurring in workers with oils (Riehl's melanosis), a deficient diet plays a definite role.

Recent work has indicated that toluene, benzene and trinitrophenol destroy vitamin C in the persons of those exposed to vapors or skin contact.[38]

Role of Alkalies

BURCKHARDT,[39] in a series of experiments found that primary injury to the skin by alkalies (soap and other alkalies) definitely favored sensitization to eczematogenic substances. In certain occupations this occurs with considerable frequency, e.g., housewives, hair dressers (soap, formaldehyde and hair dyes), plasterers (cement), laundry workers, etc. Burckhardt's experiments showed that in cases of alkali hypersensitivity, the normal function of the skin in neutralizing this alkali is retarded. He concluded, therefore, that the increased sensitivity to alkali was not of an allergic nature but was dependent upon the diminished physiologic defense function of the skin to neutralize such alkali. This neutralization of alkalies was believed to be a function of the epidermal cells and independent of the sweat secretion. Carbonic acid emitted by the skin served as a neutralizer.

Discussion

FROM time to time various writers have made the suggestion that the chemical viewpoint[40] be considered as well as the allergic in investigating cases of contact dermatitis.

In 1925 Prosser White[41] made the assertion that the vast majority of trade eruptions were due to direct physical mechanical or chemical injury or irritation.

In 1926 Prosser White,[42] while admitting that sensitization occurred, said that "unfortunately the word 'sensitization' is used loosely vaguely, and even wrongly, to explain the persistence or repetition of an industrial eruption. . . . Sensitization is too often used to explain an unaccountable course or appearance in a trade dermatosis. Instead of being a self-satisfying label, it should spur to further investigation."

Even as late as 1929 Prosser White stated that he had no evidence of the existence of sensitization and said that attention should be paid to the physico-chemical reactions and qualities of the skin; sensitization might be left to the biochemist.[43]

In 1930 Prosser White,[44] who apparently felt that sensitization and allergy were getting the better of him, made some remarks that, while somewhat difficult to grasp, indicated his ideas on the subject. He pointed out that many external agents act similarly on either living or dead skin. In tanneries, strong salt solutions dehydrate pelts just as similar solutions dehydrate the living skin. He further pointed out the action of lime and sulphides as a similar instance. Such reactions of agents upon skin, living or dead, have no relation to sensitization. He further pointed out that only proteins can act as true antigens. Finally in every instance the chemical and the protoplasm upon which it acts must be considered.

In the section of his book, "Dermatergoses," dealing with synthetic dyes, Prosser White makes the statement that "Many chemical irritants can be controlled or neutralized. This is the first line of action and should be adopted wherever practicable." He then goes on to suggest the neutralization of alkaline liquids by vinegar, acetic acid, or weak sulphuric acid followed by thorough rinsing in distilled water.

Reuter[45] recommended the following preparation as a protection against alkaline solutions:

Lanolin	9.0
Stearic acid	50.0
Triethanolamine	2.70
Carbitol	18.0
Sat. sol. boric acid	120.0

In acid or oxidizing substances a weak alkali or reducer is indicated. The value of sulphite of soda was stressed by Prosser White. Klauder[46] mentioned many substances for protection against industrial dermatitis, but his paper primarily stressed prevention.

In dermatitis of the hands occurring in tomato peelers, Foá[47] advised dipping the hands from time to time in a vat containing 1% sodium hydroxide, followed by water. This was because he felt that citric acid was the cause of the skin irritation.

General Remarks on Therapy

WITH this newer viewpoint, one can approach the subject of treatment. Chemical antidotes to the primary skin poison should be sought. These act either (a) by neutralization of the poison or (b) detoxifying the poison or irritant by forming an insoluble or innocuous compound.

In the first procedure, a corrosive and irritant alkali can be neutralized by the use of a weak acid, such as acetic acid (vinegar) or citric acid (lemon juice). The same holds true for the use of weak alkalies in the neutralization of irritant acids.

In the second procedure, one detoxifies the irritant by forming either insoluble or non-irritating compounds. Thus the oxidation of chromium compounds into innocuous metallic salts by sodium sulphite.

In still another procedure, the phenomenon of adsorption might be used. This may be defined as a phenomenon of adhesion in an extremely thin layer of the molecules of gases, of dissolved substances, or of liquids to the surfaces of solid bodies with which they are in contact. In this category are the adsorbent powders, such as charcoal and kaolin.[48]

Finally, the unusual emulsifying and detergent properties of the new synthetic wetting agents[49] might be used to remove toxic chemicals from the skin, both in preventive therapy and perhaps in therapy of the actual dermatitis itself. Due to their penetrating powers they might also be used to carry neutralizing agents.

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Ankle Sprains

—Incidence, Treatment, Diagnosis, and Lost Time Incurred—

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ANALYSIS of clinic records from the Medical Department of the Sunflower Ordnance Works, located near Lawrence, Kansas, covering a period of one year (June 1, 1942, to June 1, 1943), shows that 302 cases of sprained ankles came in for treatment. This tabulation does not include any case where a bone was fractured. All types of sprains (mild, moderate, and severe) are included in this report.

The treatment of these cases was, in general, divided into two groups. The first method consisted of the application of supportive bandage, that is, adhesive strapping, roller bandage, or some other simple means of support. If the individual was seen within 24 hours, the foot was soaked in cold (ice) water for 20 or 30 minutes, except in the very simple cases. This was followed by immediate use of the foot, unless the sprain was very severe or the work of such a nature as to greatly aggravate the condition. Hot soaks were started 24 to 36 hours after this treatment.

The second procedure consisted of spraying ethyl chloride on the swollen part until well chilled, followed by immediate use (under the conditions mentioned above) and hot soaks as before. In general, the cases treated with ethyl chloride healed more rapidly, caused a shorter period of disability and were more comfortable. Even the use of ice was definitely effective. All severe cases (lost time) were advised to stay in bed and elevate the limb until the swelling had definitely decreased.

X-rays were made on 85 cases where such was necessary to rule out the possibility of a complicating fracture. In all cases, the x-rays were negative either for fracture or bone destruction. Nineteen of the 85 plates were on 30 patients who sustained lost time. The total time lost for the entire group was 334 days, or an average of 1.1 days per patient. However, the *entire lost time* was sustained by 30 patients or an average of 11.4 days per patient for the lost time group. The seriousness of ankle sprain can perhaps be more appreciated if we consider that every tenth person seen lost 11.4 days as a result of the injury.

In our attempt to lower the lost time of these injuries, we propose to attack the only variable over which we have control, that is, treatment. In a recent article* it is noted that very satisfactory results were obtained by the local injection of an anesthetic into the sprained ligaments. This is to be followed by an immediate return to work, unless the type of work is of such a nature as to make a return hazardous. The reported lost time in such a procedure is apparently very small, and we hope by instituting this procedure to make a favorable reduction in our own lost times from sprained ankles.

Summary

THE results of treatment of 302 cases of sprained ankles using the commonly accepted procedures are tabulated.

2. In this group of patients, there was an average of 1.7 clinic visits per patient, and the number of days under treatment was 4.7 days.

3. The entire lost time was sustained by 30 patients (10% of the total) who had an average lost time of 11.4 days. In other words, every tenth patient lost over 11 days as a result of the injury.

4. It is believed that the use of ethyl chloride spray is advantageous in preventing lost time and stimulating early repair of injured ligaments. However, the use of novacaine may prove even more efficacious in this respect.

Menstrual Exercises

—Absenteeism Decrease and Work Efficiency Increase—

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SOLUTION of the problem of national labor supply has required the employment of vast numbers of women in industry. They have brought with them many medical problems not previously of much pertinent concern to industrial surgeons, but which now demand solution.

One of the most important causes of absenteeism and decreased efficiency in women is dysmenorrhea. It can be estimated that this averages two or more days per month per woman employed.

This menstrual complaint of "cramps" and "backache" as a diagnostic and treatment problem has been tossed on the seven seas of opinions, and each time has failed to come up with a workable explanation of mechanism of cause.[1] Hence, in the past no method of treatment giving persistent relief in a sufficiently high percentage of cases treated to be of practical value has ever been demonstrated in industry.

In 1942 we learned of the successful results of treatment obtained at the University of California at Los Angeles, and in the Los Angeles City School System by means of a new method[2] of active progressive ligamentous stretching exercises. During the 10-month period following July, 1942, this method of treatment was instituted at the Consolidated Vultee Aircraft Corporation, San Diego, California.

Treatment is based on the discovery that in women with dysmenorrhea there is a postural defect of contracted fascial ligamentous bands restricting posterior tilt excursion range of the pelvis in relation to the legs and back. At menstruation (with the change in ovarian hormone level[4]) the ligaments further shorten,

*J.A.M.A., 122:659, 1943.

causing impingement with irritation of the peripheral spinal nerves passing through and by them. The nerves usually irritated are one or more of the following: 11th dorsal, 12th dorsal, 1st lumbar and their branches, the ilioinguinal and iliohypogastric. The impingement gives rise to symptoms of pain in the low back in the region of irritation or in the region of distribution of these nerves in the lower abdominal wall and groin, or both. Factors influencing the contracture of the ligaments are varied.[2, 3]

Treatment consists in freeing the nerves of their impingement by correcting the postural defect. This is done through precise ligamentous stretching exercises carried out by the patient routinely to progressively, accumulatively lengthen the ligaments involved.

The patient stands with heels and toes together about 18 inches (45 cm.) from, and with side to, a wall. The elbow is placed against the wall at shoulder level, with the forearm and hand resting on the wall. The heel of the opposite hand is placed in the hollow on the posterior aspect of the greater trochanter of the hip. The shoulders are kept in a line with the elbow perpendicular to the wall and not allowed to shift forward. The knees are kept completely extended and not allowed to flex. The abdominal and gluteal muscles are strongly contracted while the hips are shifted slightly forward and in toward the wall, aided by pressure on the greater trochanter of the femur from the heel of the hand. The objective is to force the extent of sideward and forward shift of the hips in toward the wall far enough not only to place a strain on the contracted ligamentous bands but to gain a progressive stretch as well. This accentuates the symptoms momentarily at each stretch. The stretchings are done routinely three times to each side at three periods daily, a total of nine stretchings to each side every 24 hours.[2]

In teaching these stretchings, it is necessary for the patient to be checked frequently, else the stretchings may be done incorrectly or incompletely and the expected benefits not obtained.

Installation of this stretching regime in a large plant entails attention to many incidental problems which must be handled tactfully. In particular, it is of primary importance that the medical department keep close control of the confidence and respect of the employees. Careful initial employment medical data must be obtained regarding past and present disabilities, including estimate of previous employment absenteeism due to dysmenorrhea. At the time of employment the employee, if having a record of dysmenorrhea, should be informed of the necessity of cooperation in carrying out the treatment. Medical classification[5] and reclassification of work assignment possibility is a great aid to the plant foremen. Careful follow-up by health talks and consultations with the employees are used to engender a generalized, as well as specific, cooperative spirit and promote responsible interest. In order to reduce failures due to individual inertia or lack of proper cooperation, all members of the medical department continually check upon and remind the individuals being treated to consistently and correctly do their stretchings. Bulletin board reminders are kept constantly in evidence.

By the end of the first 10-months' period in which these menstrual exercises were used at the Consolidated Vultee Aircraft Corporation plant in San Diego, it became apparent that considerable good results in relief of dysmenorrhea had been obtained. Seventy thousand absentee hours due to dysmenorrhea were eliminated. There was a definite clearance of 80% in use of menstrual cramps as an excuse for absenteeism. An estimated additional 70,000 increased efficiency hours were gained in women who, though suffering from dysmenorrhea, had not been taking time off. On the "work to win" program of which membership 50% are women, and composing 45% of all employees, there is a perfect attendance record with no absenteeism during the 10-months' period.

CHART I.

TABULATION OF RESULTS AT CONSOLIDATED VULTEE AIRCRAFT CORPORATION, SAN DIEGO

A computation showing degrees of value received, days lost from work and days saved by women taking menstrual exercises for varying lengths of time:

A—Number of women taking exercises.
B—Admitted days usually lost before taking exercises.
C—Admitted days saved by exercises.

Length of Time Taken	Degree of Value Received				
	None	Slight	Moderate	Much	Total
Less than one month	A—48 B— 5½ C— 0	A—25 B— 4½ C— 0	A—15 B— 4½ C— 0	A— 5 B— 0 C— 0	A— 93 B— 14½ C— 0
One month	A—21 B— 8 C— 0	A—34 B— 3½ C— 0	A—19 B— 3 C— 0	A—13 B— 5 C— 0	A—87 B— 19½ C— 0
Two months	A—17 B— 6½ C— 0	A—16 B— 8 C— 4	A—39 B— 5½ C— 1½	A—50 B— 2 C— 5	A—122 B— 22 C— 10½
Three months	A— 8 B— 5 C— 0	A— 8 B— 0 C— 0	A— 8 B— 0 C— 1½	A—27 B— 1 C— 1	A— 51 B— 6 C— 2½
Total	A—94 B—25 C— 0	A—83 B—16 C— 4	A—81 B—13 C— 3	A—95 B— 8 C— 6	A—353 B— 62 C— 13

This information was obtained by MISS M. V. SCHMIDT, R.N., in a recent survey of women having taken the menstrual exercises.

On Chart I, which is a sample of the type of surveys used, it can be noted, by comparing Item A with the Degree of Value Received, that two to three months are necessary in many instances before moderate or much relief is obtained. The most severely affected individuals may require an additional two months of treatment. Included in the statistics on the Chart are those individuals who for one reason or another have not as yet fully cooperated. From the results during the initial 10-month period we can state that it is possible, in a plant the size of Consolidated Vultee Aircraft Corporation, to install such a method of correction of dysmenorrhea with success in elimination of absentee hours.

Summary

AN EFFECTIVE method of reducing absentee hours by relief of dysmenorrhea through a new treatment program at Consolidated Vultee Aircraft Corporation, San Diego, is described.

2. A review of important practical points requiring attention in installing such a program is gven.

3. An analysis of results obtained during the initial 10 months of installation of the program, showing 70,000 absentee hours eliminated, 80% reduction in use of menstrual cramps as an absentee excuse, 70,000 decreased efficiency hours eliminated, and a perfect attendance record on the "work to win" program, is presented.

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Oral Prophylaxis

—Against Upper Respiratory Infections—

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ANY ETHICAL procedure which can be shown to reduce absenteeism in industry certainly deserves comment and serious consideration. Such a procedure is doubly important when it affects the health and life of the individual, and is especially so at the present time when it is necessary to conserve and augment our industrial manpower in every way possible. The leaders in medicine, government, labor, and industry have emphasized again and again the necessity for such conservation, and by far the greatest burden of this responsibility rests with the physician associated with an industrial plant.

Absenteeism, due to illness, represents a tremendous loss to the nation, to industry, and to labor, and a variety of estimates with regard to the economic, productive, and financial losses can be accumulated by casual perusal of the current literature. Upper respiratory infections account for a large percentage of sick absenteeism and reduced productive efficiency, and are conservatively estimated by Lanza[1] to represent about 45 million work days per year, or the equivalent of the full time work of 150,000 persons for one full year. The result of such productive loss relative to its effect on the ultimate successful conclusion of this war cannot be determined accurately, but it requires no great strain of the imagination to realize the enormous difference it would make to the men of our armed forces and their families if the fighting period of this war were reduced even by one day. Lanza estimates the total financial loss to workers, including wages and medical costs, to be $400,000,000 yearly, and the cost to industry is estimated to be at least equal to that amount. The entrance of women and of older workers into industry will undoubtedly cause an increase in sick absenteeism, and in fact this trend has already been noted, with particular reference to respiratory diseases.[2]

Despite the objections to the theory of absorption of antigens through the gastro-intestinal tract and the resultant immunization or protection derived therefrom, the oral administration of water-soluble antigenic substances to a group of unselected industrial workers has proved to be of definite advantage over a two-year period. A comprehensive review of the literature relative to the development of oral immunization has been noted by Sessions[3] in a recent paper which relates his experience with the same prophylactic agent which was used in the present series. A number of reliable investigators have reported good results with orally administered bacterins in prophylaxis against respiratory infections.[4, 5, 6, 7] Piccoli[8] cites statistics from more than 3,000 individuals and an equal number of controls who were not immunized, and shows that the incidence of colds in the latter group was about four times greater than the number of colds which occurred in the immunized group. He also pointed out that the practical difficulties of parenteral administration were obviated by the oral administration of the prophylactic agents, and that the latter method offered incalculable advantages when it was necessary to apply prophylactic immunization to large masses of the population.

IT IS commonly accepted that the etiological agent of the common cold is probably a virus, the identity of which has not yet been established. When a common cold is acquired, one or a combination of the following possibilities may occur: (1) The general or local resistance of the individual may be reduced. (2) The virulence of the bacterial pathogens normally present in the upper respiratory tract may increase. The severity of symptoms and the development of complications are dependent upon these two factors. Since we have not yet been provided with a prophylactic agent against the suspected virus, an attempt should be made to reinforce the individual protective mechanism against the common bacterial respiratory pathogens including pneumococcus, staphylococcus, streptococcus, H. influenzae, M. catarrhalis, and B. friedlander.

Prior to the report by Murat[9] in 1940, oral immunization for protection against upper respiratory infection was induced by the administration of tablets containing killed organisms. Murat, however, used a tablet containing only the water-soluble antigenic substances derived from recently isolated strains of bacteria commonly associated with infections of the upper respiratory tract. Palmer and Andes[10] administered the same preparation for prophylactic immunization against colds to university students in a controlled study. Sessions[3] administered the tablets to workers in an industrial plant with which he was associated. In all three reports an apparent difference in the susceptibility to upper respiratory infection is noted in favor of those to whom the tablets containing the water-soluble antigenic substances were administered. Sessions reports a reduction of 85.3% in work days lost due to upper respiratory tract infections. The same water-soluble antigenic substances, known as 'Vacagen' oral cold vaccine tablets, used in the three studies mentioned above were administered to a group of industrial workers employed in the Monessen and Allenport plants of the Pittsburgh Steel Company.

These tablets contain the water-soluble antigenic fractions of pneumococcus Types 1, 2 and 3, streptococcus (non-hemolytic, hemolytic and viridans), H. influenzae, M. catarrhalis, Staphylococcus aureus, and B. friedlander. The antigenic fractions derived from these organisms are rapidly frozen and desiccated under high vacuum by the lyophile process, and incorporated into tablets which are enteric coated for oral administration. The present clinical investigation includes data recorded during two consecutive seasons in which colds are commonly acquired in this part of the country.

DURING the years 1941 and 1942, from the fifteenth of October to the end of March, the tablets described above were offered to all employees of the Monessen and Allenport plants. The total number of employees engaged in these two plants during the two years of this study was 6,686, and 1,594 availed themselves of the proferred medication. Only 612, however, completed the course or met the requirements for inclusion in this report. The requirements were as follows: (1) That the tablets must have been taken for a period of at least three months. (2) That a break in medication should not have extended over a period exceeding two consecutive weeks. (3) That not less than 27 tablets were ingested.

The rapid labor turnover due to enlistment and induction in the armed services and to labor migration is reflected in the relatively small number of persons who completed the course. It is believed, however, that the records of the group included in this study are significant because of the requirements noted above, and because the group represents a fair cross-section of the plant personnel.

All employees were notified of the availability of the tablets, and those who desired the medication presented themselves at the plant dispensary at certain designated times. A short history was taken on each patient, and at the first visit a set of instructions regarding administration of the tablets was distributed, together with seven 'Vacagen' tablets. One tablet was to be taken with a glass of water, preferably one hour before breakfast each day for seven days. One tablet twice each week was to be taken in the same manner throughout the cold season. At the end of the first week the patient returned for an additional supply of tablets to continue medication. He was requested to state the manner and regularity of administration, and this information was recorded on the original history card, together with any comments relative to side reactions or incidence of upper respiratory infections. When this information was received and recorded, a four weeks' supply of the tablets was provided and the patient instructed to return when the supply was exhausted.

TABLE I.
DISTRIBUTION OF INDIVIDUALS IN REGARD TO NUMBER OF UPPER RESPIRATORY INFECTIONS REPORTED PRIOR TO AND DURING MEDICATION

Total Number of Individuals Reporting Colds in each Classification *Prior* to Medication	Number of Upper Respiratory Infections per Year		During Administration of Oral Cold Vaccine Tablets (1941 and 1942)					
			0	1	2	3	4	5+
100	Prior to the Current year (1940 or 1941)	0	89	10	1	..	..	..
107		1	78	21	4	2	1	1
108		2	69	27	9	2	1	..
118		3	89	24	2	2	..	1
66		4	40	16	5	2	2	1
113		5+	70	21	11	4	3	4
Total Number of Individuals Included in Study	Total Number of Individuals Reporting Colds in each Classification *During* Medication							
612			435	119	32	12	7	7

Six hundred and twelve employees completed the required regimen, and an analysis of the records reveals a number of interesting facts, as indicated by Table I. The latter is so arranged that the number of upper respiratory infections reported by each individual prior to the current year of administration of 'Vacagen' tablets is plotted against the number of colds reported by the same individual during or at the conclusion of the prophylactic course. Thus, there were 100 employees who reported no upper respiratory infections prior to medication, and 89 of these reported no

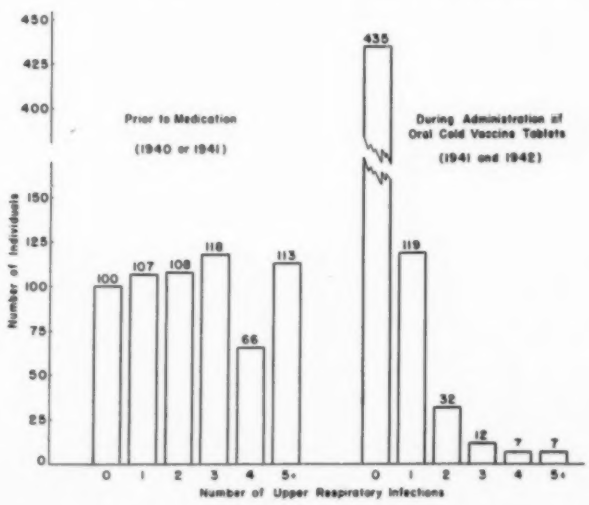

Fig. 1.
Distribution of individuals in regard to the number of upper respiratory infections reported prior to and during medication

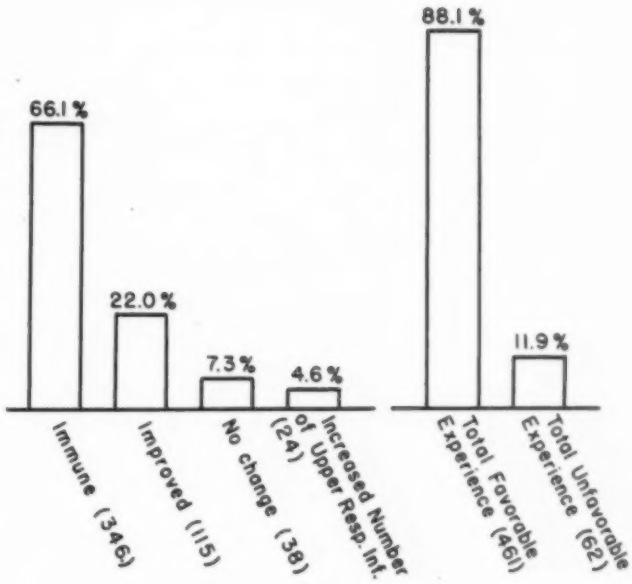

Fig. 2.
Summary of results obtained from 523 employees in regard to prophylaxis against upper respiratory infections following oral administration of water-soluble antigenic substances. (Figures on abscissae represent the number of employees)

upper respiratory infections during or after the course while 10 reported one attack, and one reported two attacks of colds. Similarly, there were 113 employees who reported five or more colds prior to medication, and only four of this number failed to derive any benefit from the prophylactic course, the remainder reporting no colds (70) or a reduction in the number of acute upper respiratory infections.

Examination of the totals reported in Table I reveals that there was an almost even distribution of the number of colds reported per person per year prior to medication; i.e., 100 reported no colds, 107 reported one cold, 108 reported two colds, and 297 reported three colds or more. After medication, however, 435 reported no colds, 119 reported one cold, 32 reported two colds, and only 26 reported three colds or more. These results are, however, more striking when presented in the form of bar graphs, as in Fig. 1.

Further analysis of the information contained in Table I will reveal that, excluding the 89 employees who reported no upper respiratory infections previous to medication, 346 individuals, or 66.1% apparently developed sufficient protection during administration of the oral cold vaccine tablets to prevent the occurrence of any upper respiratory infections; 115 additional persons, or 22%, acquired fewer colds than their past histories indicated had been acquired previous to administration of the tablets. Favorable results, therefore, were obtained in 461 employees, or 88.1% of the 523 persons who reported one or more upper respiratory infections previous to medication and who completed the course. No change was reported by 38 individuals, or 7.3%, and 24 persons, or 4.6%, reported an increase in the number of colds acquired during medication. These results are summarized in Fig. 2.

Included in the above reports of the 612 employees to whom the tablets were administered in either of the seasons beginning in 1941 or 1942, there are 74 patients who received full courses of medication during both seasons. This group deserves special treatment if for no other reason than that the majority of individuals report three or more colds per year prior to medication; i.e., 72.9% of this group reports three or more colds per year, whereas 48.5% of the larger group reports three or more colds per year prior to medication. Table II illustrates the preponderance of persons in

TABLE II.

DISTRIBUTION OF INDIVIDUALS TO WHOM ORAL COLD VACCINE TABLETS WERE ADMINISTERED FOR TWO CONSECUTIVE SEASONS IN REGARD TO THE NUMBER OF UPPER RESPIRATORY INFECTIONS REPORTED PER YEAR PRIOR TO AND DURING MEDICATION, 1940 AND 1941, RESPECTIVELY

Total Number of Individuals Reporting Colds in Each Classification *Prior* to Medication (1940)	Number of Upper Respiratory Infections per year		During Administration of Oral Cold Vaccine Tablets (1941)					
			0	1	2	3	4	5+
2	Prior to 1941	0	..	2	..	..	..	..
7		1	5	2	..	..	..	..
11		2	5	6	..	..	..	..
18		3	12	6	..	..	..	..
10		4	3	4	1	..	2	..
26		5+	9	10	3	3	..	1
Total Number of Individuals Included in this Group	Total Number of Individuals Reporting Colds in each Classification *During* Medication in 1941							
74			34	30	4	3	2	1

TABLE III.

DISTRIBUTION OF INDIVIDUALS TO WHOM ORAL COLD VACCINE TABLETS WERE ADMINISTERED FOR TWO CONSECUTIVE SEASONS IN REGARD TO THE NUMBER OF UPPER RESPIRATORY INFECTIONS REPORTED PER YEAR AFTER FIRST COURSE AND DURING SECOND COURSE OF MEDICATION, 1941 AND 1942, RESPECTIVELY

Total Number of Individuals Reporting Colds in Each Classification *after First Course* in 1941	Number of Upper Respiratory Infections per year		During Administration of Oral Cold Vaccine Tablets (1942)					
			0	1	2	3	4	5+
37	Prior to 1942	0	34	3	..	..	..	..
24		1	14	8	1	1	..	..
7		2	2	5	..	..	..	..
3		3	2	..	1	..	..	..
2		4	2	..	..	..	..	..
1		5+	..	..	..	..	..	1
Total Number of Individuals Included in this Group	Total Number of Individuals Reporting Colds in Each Classification *During* Medication in 1942							
74			54	16	2	1	..	1

this group who had acquired numerous colds previous to immunization. The favorable experience of this group after administration of the tablets is readily observed when it is seen that 34 persons report no colds at the end of the first course, as compared with only two who reported no colds previous to medication.

During the second year, as seen in Table III, the "no-cold" group is increased to 54, or 58.8% over the previous year. The series of bar graphs in Fig. 3 present the data contained in Tables II and III in a more striking manner, and indicate that immunity might be retained by individuals previously susceptible to upper respiratory infections. If the immunity afforded by the administration of the tablets were temporary or lost during the intervening spring and summer season, it might be expected that the results obtained during 1942 would parallel those of 1941. Since this is apparently not the case, however, and the experience of this group is revealed to be even more favorable during the second year, it is possible that some degree of protection afforded by a single course may extend beyond a 12-month period.

A number of factors have prevented the accurate presentation of the reduction of the number of working days lost due to upper respiratory infection, but the information accumulated in this report certainly provides sufficient evidence to recommend the continued use of this preparation and to justify great additional effort to include all plant personnel in the prophylactic program directed against upper respiratory infections.

Summary and Conclusions

A PROPHYLACTIC course of oral cold vaccine tablets containing water-soluble antigenic substances was completed by 612 employees, who represented a fair cross-section of the personnel of two large industrial plants.

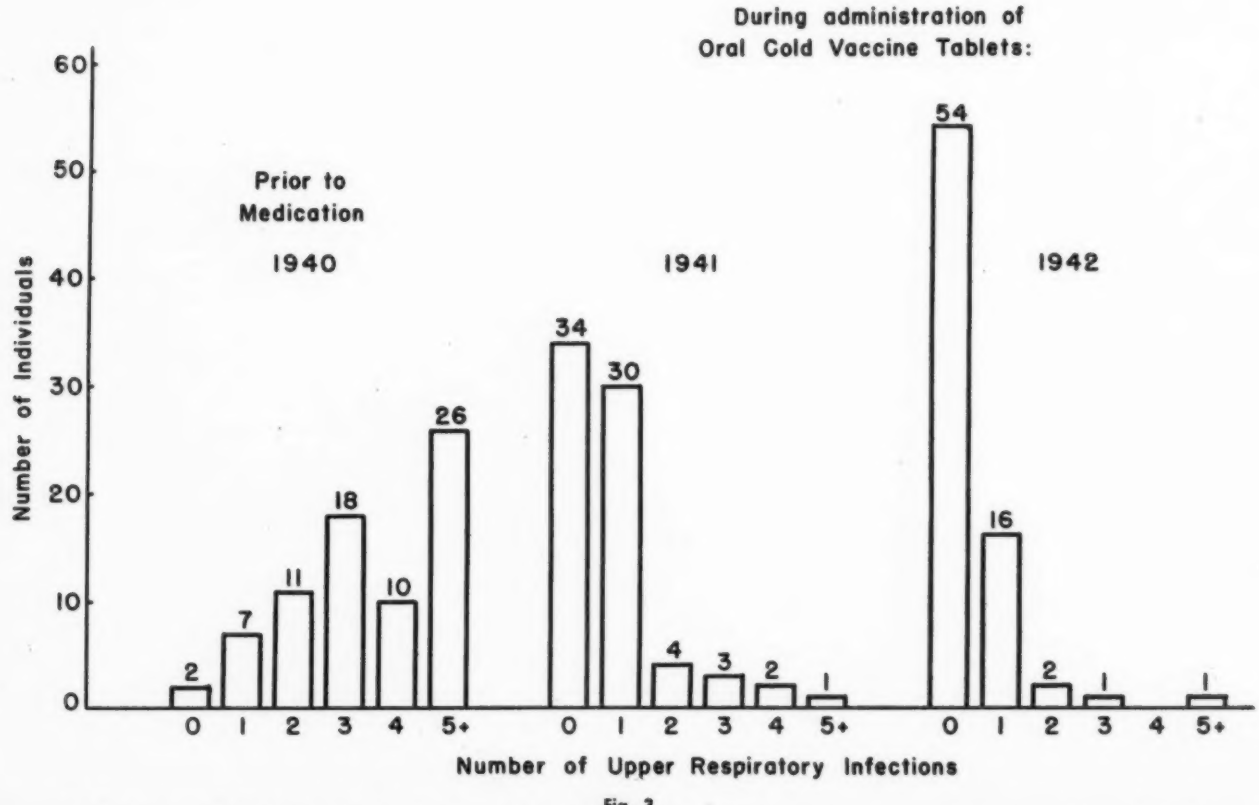

Fig. 3.

Distribution of individuals to whom oral cold vaccine tablets were administered for two consecutive seasons in regard to the number of upper respiratory infections reported per year prior to and during medication

2. The number of individuals who reported no upper respiratory infections during medication was over four times the number of persons who reported no colds prior to administration of the tablets.

3. The number and percent, respectively, of persons who apparently developed an immunity to upper respiratory infections was 346, or 66.1%. The number of persons who reported improvement or a reduced number of upper respiratory infections during the period of administration was 115, or 22%. Individuals who reported no change were 38, or 7.3%. Persons who reported an increased incidence of upper respiratory infections were 24, or 4.6%. Favorable results were obtained by 461 employees, or 88.1% of those who completed the prophylactic course for immunization against upper respiratory infections and who reported one or more colds previous to medication.

4. Analysis of the data obtained on a special group of 74 employees who completed the course for two consecutive years indicates that the oral cold vaccine tablets are particularly effective in providing protective immunity for persons especially susceptible to upper respiratory infections, and, further, that some degree of protective immunity extends beyond a period of 12 months.

5. The favorable results obtained by oral administration of water-soluble antigenic substances appear to recommend this procedure as an effective and practical method to provide prophylactic immunization against upper respiratory infections in industrial workers and other large masses of the population.

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NEWS, COMMENT and OPINION

—Continued from page 50.

THE Department of Health of the State of New Jersey, whose industrial health activities have expanded rapidly during the present war, has just announced its need for two full-time industrial hygiene physicians for its Industrial Hygiene Service. As one of the leading states in the production of war materials, New Jersey offers unusual opportunities for gaining experience in occupational disease control besides giving the physician a chance to make a valuable contribution to the war effort. The principal duties of the selected physicians will be consultations in regard to the following: control of occupational diseases; industrial toxicological problems; evaluation of adequacy of plant medical services; promotion of measures which will reduce absenteeism from non-occupational causes; and conduct of industrial health education activities. Physicians interested in these positions should write to the Department of Health, of the State of New Jersey, Trenton, New Jersey.

The Grim Reality

UNDER the heading "Gold Star Poster Tells Powerful Absenteeism Story," *Printers Ink*, of August 20, has the following: "AN ABSENTEEISM poster that tells a compelling story in just eight words—'He Is Absent . . . Is Your Reason As Good?'—is appearing in plants of International Harvester Co. The design is based on a gold-star service flag, reproduced in the familiar red, white, blue and gold color scheme. The name below the star is that of a Harvester man who has lost his life in the service of his country. By means of imprinted fill-ins, the name on the particular poster which goes up in a given plant is that of a man who formerly worked in that plant. His department and title are listed below his name, so that those who did not know him personally may recognize that he was once one of their fellow workers. Since there are 31 gold stars on the Harvester flag, some of the 17 plants are represented by more than one name. In these cases, posters with two or more different fill-ins are supplied. These are placed so that when they first go up the posters bearing each man's name are in or near the department where he worked. Then, after an interval, locations are interchanged. The original idea was conceived by a labor-management committee at the Ft. Wayne plant in a locally-produced poster based on the death of a Ft. Wayne boy in the Tokyo raid. Brought to the attention of headquarters at Chicago, it was developed for national adoption. Use of names of Harvester's own war dead, it was decided, would bring the message home even more closely, and the service-flag design was worked out to tie in with this. . . . Before put into national use, the poster was tested in the company's McCormick works at Chicago, since in view of the grim nature of the message, it was felt best to get an advance angle on possible employee reaction. So sobering was the poster's effect that workers volunteered little comment when it went up, but a survey made after a few days revealed that it had exerted an exceptionally powerful impact. Two weeks is the maximum period for which any poster is left up in the 1,500 locations in Harvester plants. Studies have demonstrated that after that time the poster just becomes part of the background and is no longer seen. This design, however, will be put into use again after a suitable period. It is likely that other Harvester men will be lost in action, and use of their names will give renewed timeliness and effect to the poster."

Absenteeism in May

ABSENTEEISM in American industry caused the loss of 41,500,000 man days during May compared with 42,020,000 in the preceding month, the National Industrial Conference Board disclosed today. Women were absent from work twice as much as men, the former's absenteeism averaging 1.4 days in May as against .8 day in the case of the men. Both were unchanged compared with April. The compilation is based on figures from 42 plants employing 119,736 workers. About 76% of the plants were engaged in production of war materials and about 83% of the men and 63% of the women were factory workers, the others being engaged in office work. The board found that illness continued the number one reason for absenteeism. Reports from 37 plants employing 102,774 persons showed 62.5% of the man days lost were due to sickness, 1.2% the result of non-industrial accidents, 36.3% from other reasons.

—Chicago Herald-Examiner, August 30.

The Vitamin Question

THE MASS administration of synthetic vitamins, whether or not it is a good practice, is a moot question. The American Medical Association and the Committee on Food in Industry take the stand that the only sure way of maintaining proper nutrition, in the long run, is through the daily consumption of natural foods containing the proper amounts and kinds of nutrients. As for the indiscriminate administration of vitamins to workers, the Council on Foods and Nutrition and the Council on Industrial Health of the AMA are emphatic in their disapproval. These authorities state that the prac-

tice is "irrational from the therapeutic point of view and therefore has no place in a program aimed at securing industrial health. It is unwise nutritionally, because special vitamin preparations cannot take the place of valuable natural foods in achieving the completely satisfactory nutritive state. Finally, because a good diet can provide all that vitamin preparations have to offer and more in this connection, the mass administration of vitamins is uneconomical." However, many other authorities, including industrial physicians, who have had experience with mass vitamin administration in plants, stoutly defend the practice. While agreeing that it is more desirable to provide vitamin content by way of the food itself, they point out that the vitamin content of fresh foods is highly variable and that administration of vitamins is insurance against this variability. For example, the vitamin content of many foodstuffs varies with the seasons; there are vitamin losses in transportation, and further losses in the preparation of food.... Vitamin pills can be an effective weapon in the fight against absenteeism—and in stepping up production. That is the considered opinion of Electronic Laboratories, Indianapolis, where a "Vitamins for Victory" program was introduced to the 1000 employees early this year. The plan caught on without the usual selling campaign. Workers were reminded that vitamins are being used to build the strength of the fighting forces, and they were told their pills would be supplied free of charge. There has been 100% participation in the program. Pills packed in cellophane by the company nurse are arranged in strips of seven so that one can be torn off each day in the week. The strips are distributed on Thursday with the pay checks. Each morning, usually during the rest period, the employee takes his pill. For workers who want their families also to benefit, pills are made available at cost. Within the first vitamin month, says the management, production figures showed that output was stepped up 10 to 15%. Employees had a brighter outlook, were more pleasant in their relations with one another and with the management, and they contributed more shoulder-to-the-wheel cooperation. Absenteeism due to illness dropped immediately, and is still declining. It is to the vitamin-taking program that the management of the plant attributes the ability of employees to maintain peak efficiency throughout a seven-day, 56-hour work week.

—From "How to Make the Most Effective Use of Manpower: Step 6—Carry on Health and Safety Activities," in *Factory Management & Maintenance*, August.

Industrial Hygiene Symposium

THE American Chemical Society's Division of Water, Sewage and Sanitation Chemistry, is having a Symposium on Industrial Hygiene at the William Penn Hotel, Pittsburgh, Monday, September 6, with the following program:

R. T. PAGE—"Development and Scope of Industrial Hygiene Services."

WARREN A. COOK—"Chemical Control of Industrial Health Hazards."

FRANCIS R. HOLDEN and W. C. L. HEMEON—"The Hygienic Appraisal of Solvent Vapors and Their Control by Ventilation."

R. M. WATROUS, M.D.—"Benzol Poisoning—Program for Its Control in Light Chemical Plant."

F. H. GOLDMAN—"Methods of Sampling and Analysis of Air Contaminants in the War Industries."

R. A. KEHOE, M.D., J. CHOLAK and E. J. LARGENT—"The Hygienic Significance of the Contamination of Water with Certain Mineral Constituents."

WILLIAM L. LEA—"Rapid Indirect Determination of Zinc by the Dithizone Method."

British Absenteeism

BASED on the experiences of the country's coal industry, first accurate reports on absenteeism in British war plants reached authorities last fortnight. Total absences in essential industries were estimated to be an alarming 10%, of which 4.4% were considered avoidable. Reasons for those in the latter category included sickness, injuries, shopping difficulties, demands of home life and fatigue due to long hours.

—*Tide*, August.

Tsk! Tsk!

ONE James B. Crane, of *Chicago Sun's* Washington Bureau, under the heading "Women in War Jobs Driven from Plants by Rumors of Illness," says that Federal officials believe enemy agents have launched a nation-wide propaganda campaign to intimidate women war workers and cause them to quit their jobs because of fear of various physical ailments that might be contracted as a result of their work. He writes: "There have been false reports of sterility induced by certain light rays, of prolonged menstruation because of the rigors of some occupations, and even of artificially induced pregnancy." And he continues: "The Public Health Service says none of these rumors has any substantial medical support."

THIS MONTH

—*Continued from page 4.*

the matter of the problems encountered in industry. . . . DR. BARTLE'S "Emergency Sickness" (page 606) is from the experience of 40 years in doing what he talks about. . . . LONG ISLAND COLLEGE OF MEDICINE is going to repeat its Post-Graduate Course in Industrial Medicine (page 612). This is an event of great importance; its first course set a standard that will be hard to excel. . . . DR. FOWLER'S analysis of the relationships of "External Trauma and Peptic Ulcer" (page 614) forcefully emphasizes the fact that the haste and turmoil of war production have not changed the place or reduced the importance of compensation. It must still be taken into account; in the minds of many, its place in the account is due for a terrific post-war resurgence. . . . THE announcement several weeks ago that DR. LEVERETT BRISTOL had been offered the appointment as Health Director of New Jersey was news when it came out (page 10). The announcement was qualified by the words "If he accepts." It is now news that, after very careful consideration, he has decided to decline the offer. One element of news value in this is that public health has once more turned to industrial medicine to fill an important position. New Jersey's Department of Health now needs two full-time industrial hygiene physicians for its Industrial Hygiene Service (page 593). . . . "THE GRIM REALITY" (page 593), may suggest that such a poster where the sickness absentees would see it might influence more than one to the realization that his or her indisposition was more wish-induced than real. Last month DR. BARTLE proposed that the term "fatigue" be qualified. It might also be a good idea to qualify "sickness" in the absenteeism statistics.

NEW A. A. I. P. & S. COMMITTEES

DR. BARTLE'S appointments of the 1943-44 Committees of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, received too late for inclusion on page 6 of this issue, are as follows:

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Volume 12 SEPTEMBER, 1943 Number 9

Carbon Tetrachloride Again

In connection with the recent comments in these pages regarding a lower M.A.C. for carbon tetrachloride,* comes now an echo from the manufacturers of this substance suggesting that the present attention to the possibility of more accurate and safer standards might well extend, as it were, clear across the board. Determinations in this respect should not be confined to a single product; all similar products should be reviewed together. One of the reasons for this suggestion may be inherent in the history of carbon tetrachloride. It is among the oldest of the chlorinated solvents, and when introduced it was in some respects ahead of its time. It was rather quickly applied to many purposes without realization that its use was fraught with hazardous possibilities. And thus it was the cause of much damage before the facts regarding the dangers of its uncontrolled employment were developed. Then, of course, when the facts became known the reaction went almost to the other extreme. As a result the substance—although its use has increased nearly 100% in the last five years—now labors under a notoriety of suspicion, with the psychology of suggestion pre-disposed toward more blame, perhaps, than it deserves. Not that it is blameless in respects of 100 p.p.m. being too much, but only that the facts should be sound and the evidence imposing before it is given the further opprobrium of being placed alone in the bad name class. Otherwise more substances of the kind may be left to take the same course and have to pass through a curative cycle before they hit a preventive par. Time and work and money will need to be expended in an all-inclusive study, but that is the kind of research for which expense is well justified. Much study of this kind is already under way. As DR. STERNER points out, the need for a competent and authoritative body to guide and direct this study has been met by the creation of an American Standards Association Committee which includes a very fortunate selection of competent authorities in this field, and represents a good cross section of governmental insurance and industrial agencies. Meanwhile, case records, minor instances and isolated experiences in all toxic connections are helpful. That is one reason we like to have them submitted for publication in these pages.

*Bowditch, M.: *Industrial Medicine*, July, 1943.
Byers, D. H.: *Industrial Medicine*, July, 1943.
Sterner, James H., M.D., *Industrial Medicine*, August, 1943.

They Have to Listen . . . .

A certain religious sect is so zealous in the desire to spread its teachings that no consideration of time, place, or feelings is sufficient to temper the proselyting of its ministers. They seize upon every occasion when people are gathered together, and they are particularly fond of funerals, because there the assembled "have to listen; they can't leave." It has been interesting to note how many proponents of plans aimed at the more abundant life seem to have the same idea regarding employees. There they are, plants and offices are full of them, and they can't get away. So tell them about this, urge upon them that, preach to them about something else—there are loud speakers, bulletin boards, pay envelope stuffers, employee magazines—push, pound, persist—all in the interests of the good cause whatever it happens to be. And it has been interesting to note how many of these proponents, organized and individual, have been seeking the cooperation of the industrial physicians, asserting that since they are closest to the employees individually they are more likely than anyone else, even the foreman, to be listened to with attention and respect. If a summary of isolated instances is indicative of the range of this solicitation of industrial medical men, it appears that they could if they desired become advisers of the employees in their plants on almost every detail of daily existence, not because the employees ask them to or because the scope of their medical department activities requires them to or makes it advisable that they should, but because some well-meaning person or organization outside the plant thinks they ought to. In due course, however, such things, to paraphrase the immortal bard, have a way of "growing into a plurisy, to die in their own too much." The explosion point for one medical director came when he was being told why he should interest himself in certain of the social tendencies of his workers. The things he said!!!

Why?

It is characteristic of the social plans with which we are being afflicted, that the noble aims which grace their preambles and the ideal purposes that embroider their texts make them plausible and somewhat difficult to oppose. To be effective, therefore, criticism must be tactful, for its own sake, to differentiate between the aims and the methods of attaining them. And so, in being critical, it is sometimes well to wait until the arguments begin, since they have a way of laying themselves wide open on the score of fuzzy reasoning. There is an example of this in the article from across the water on page 640, regarding the advantages of a "comprehensive industrial health service," which is urged with the same kind of zeal that is so prevalent here. Such a service is said to be necessary "because it would make available to every one the skill which is now reserved for the employees of large

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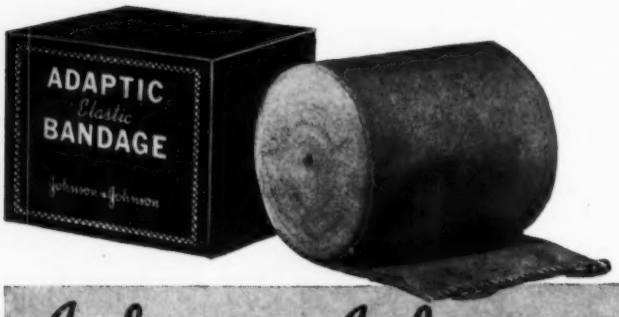

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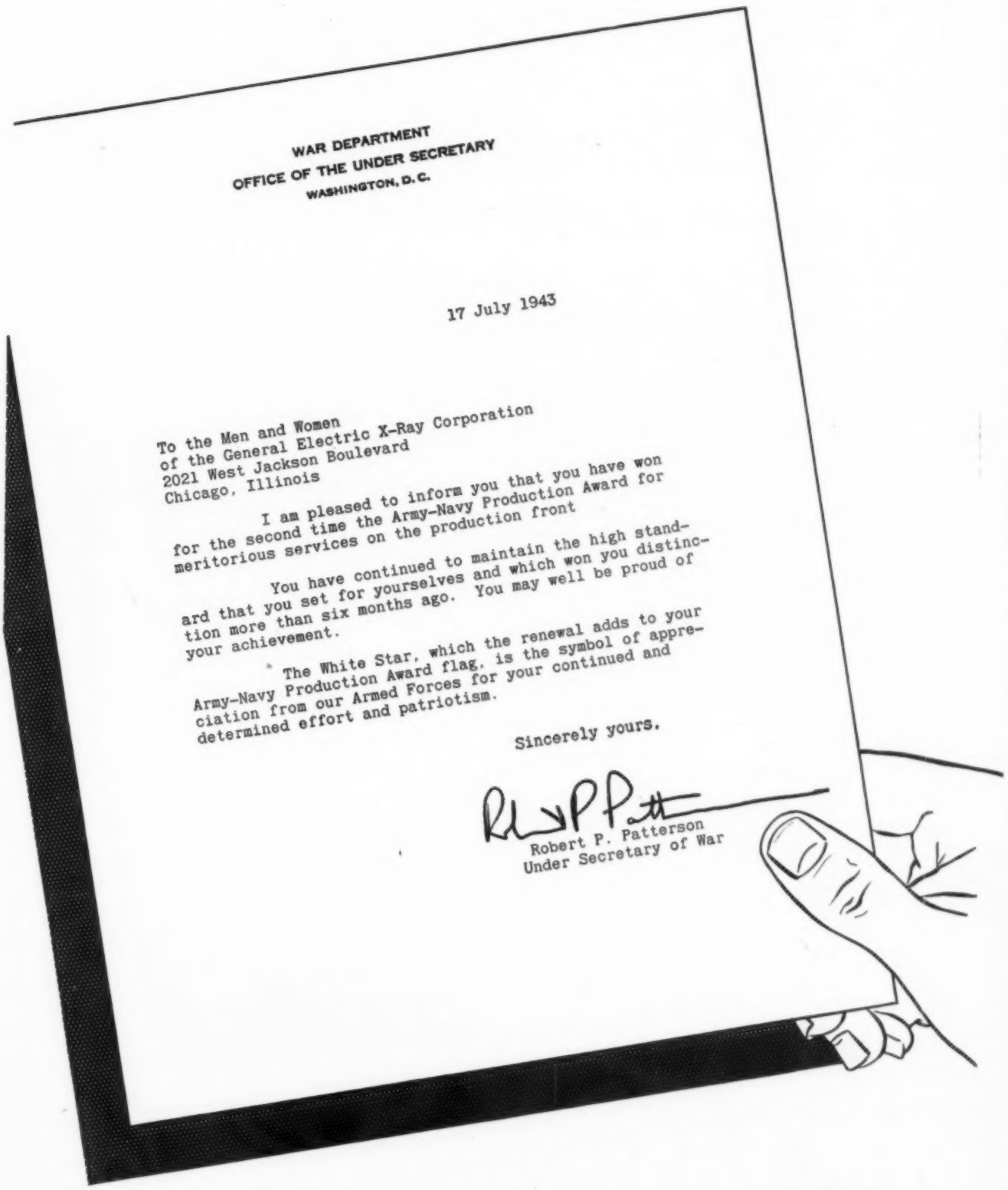
companies and government undertakings." It is admitted, however, that, at least for the duration, the personnel for a "greatly increased employment of a specially trained medical and nursing staff in industry" does not exist. As to assistance from the general practitioner, "no one can expect him to sit down and study the subject of industrial health at length and spend periods of time getting to know industrial processes. So it must be made easy for him. But nothing can be done unless he is interested, and it is true to say that vast numbers of general practitioners are not faintly interested at the moment." The plan, then, seems to be to spread the existing supply of industrial doctors and nurses: "The practice of employing an industrial medical officer to advise a group of factories could be extended. Some large concerns employ very large staffs of fully trained industrial nurses. Ideal though this is, we cannot afford to have so much skill concentrated in one area." *But* "the industrial medical officer should put on dungarees and get into the factory, for you can only understand the industrial environment if you have experienced it yourself. Three things the industrial medical officer must do: Get to know the processes; get to know the people in the factory; get to know the management. . . . Working environment and its effects on the average man and woman cannot be studied from within the walls of a beautiful surgery."

Several decades ago there was a best selling novel in which the principal character, a lawyer, made a bum out of a preacher by persistently asking him "Why?" The insistent "why" repeatedly applied to some of the foregoing would drive the explanation behind the shelter of befuddlement. For example, "why" as to not affording to have so much skill concentrated in one area? For those who are interested enough to read the article with the indefatigable "why" at hair-trigger in their minds we recommend that they also think sympathetically of the industrial doctors and nurses donning their dungarees and getting acquainted with all the industrial environments over which they are to be re-distributed.

No Adjournment

THE current *West Virginia M. J.*, commenting editorially on the suggestion that politics be adjourned for the duration, asks why stop at partisan politics, and proposes adjournment also of "all efforts at introducing change into the American way of life." One of such "efforts" to be adjourned would be that embodied in the Wagner-Dingell bill. The trouble with discussions of the suspension of politics is that the word has a different meaning on each side of the fence that separates the ins and the outs. From either side, it is only what the other is doing. It is like Frank Gunsaulus used to say of the term doxy: "Orthodoxy is *my* doxy; heterodoxy is *your* doxy." All meanings merge, however, in terms of votes. And at that fusing point the suggestion to adjourn politics becomes only the suggestion to adjourn the solicitation of votes by any other means than this year's forms of Caligula's "bread and circuses," namely, "social security" and its benevolent kindred. The suggestion might be taken more seriously if all such vote-soliciting proposals as the above mentioned bill had been suspended before it was made. But they were not, and they won't be; and it is no part of the plans of the suggesters that they should be. And so the suggestion elicits only the response that "even if it was good, we wouldn't like it!" No, let's not adjourn



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Health Conservation

—In Industrial Establishments of the War Department—

LT. COLONEL W. J. McCONNELL, M. C., U. S. ARMY

WITH our country engaged in the greatest struggle in its history to preserve the American way of life, a large proportion of our industrial establishments, supplemented by newly constructed government-owned plants, were converted speedily to war production work, and are now turning out unprecedented quantities of raw materials and implements of war for our fighting forces and allies that will assure victory in the shortest possible time.

Of the government-owned plants assigned to the War Department, the Army operates more than a third while the others are operated under contract. These plants embrace every phase of the manufacture of explosives, chemicals, ammunition, mechanized equipment, aircraft, and related industries. Hundreds of thousands of industrial workers, an ever increasing number of whom are women and workers with physical defects which disqualify them for military service, are employed in these plants.

The responsibilities and liabilities of the Army, as employer, to its employees are essentially the same as those of any other employer. Such measures as will aid to make industrial life safe, healthy, and efficient must be instituted and enforced. Adequate medical and safety programs are of paramount importance and must be maintained in all plants.

In order to advise on such specialized health problems as are encountered in industry, there has been established in the Division of Preventive Medicine in the Surgeon General's Office, an Occupational Hygiene Branch. The functions of this branch are to initiate, coordinate, and supervise the industrial medical program of the United States Army. The Surgeon General is charged with the responsibility for making all necessary provisions for the supervision of industrial hygiene and for the emergency treatment of military personnel and civilian employees at Army-operated industrial plants; and for the establishment of proper standards of industrial hygiene in Army-owned, contractor-operated munitions plants, and for necessary control and inspection to insure compliance with such standards.

To fulfill these responsibilities of the Army's Medical Department, experienced industrial physicians and industrial hygiene engineers have been commissioned and assigned to Army-operated plants, Service Commands, and to other Army departments wherever indicated. The duties of these officers are prescribed by the office of the Surgeon General.

The medical departments of contractor-operated plants are not staffed with military personnel but are civilian employees of the contractor.

Industrial hygiene surveys and investigations concerning occupational health hazards in Army-operated industrial facilities are conducted by the Army Industrial Hygiene Laboratory which recently has been established at Baltimore, and is supervised by the Chief of the Occupational Hygiene Branch of the Surgeon General's Office.

In Army-owned, contractor-operated facilities, these studies are conducted under agreement by the U. S. Public Health Service through the Division of Industrial Hygiene, National Institute of Health, at the request of the Surgeon General's Office.

Among other activities of the Occupational Hygiene Branch of the Surgeon General's Office, is that of liaison with other Army departments, the service commands, and with governmental and private agencies.

Since the arrangements concluded between the Office of the Chief of Ordnance and the Surgeon General's Office differ in some respects from those with other Army departments, brief mention of the joint activities of the two departments will indicate the health and safety programs initiated by the Chief of Ordnance.

Immediately after the appointment of Major General Levin H. Campbell, Jr., as Chief of Ordnance, he established in the Ordnance Department the safety and security branch (originally known as the explosives safety branch). The principal work of the safety section of the branch in connection with plants assigned to the Ordnance Department for continuing inspection responsibility is to develop and have adopted by the operating management of a plant proper protective measures against the hazards which have been discovered in each operation. To accomplish these objectives regular and frequent safety audits of these plants are made by trained personnel who are given additional training in the safety section's own school set up for this purpose. Selected men from government-owned plants, Ordnance districts, and others interested may enroll for this training course. Committees of experts in the various industries act in an advisory capacity to the section, and liaison is maintained with Federal, state, and local authorities having special interest in safety work.

Supplemental to the safety section is the security section, whose responsibilities revolve about protecting facilities from malicious damage, as contrasted to safety section's protection from accidents. The security section, therefore, is responsible for: (1) preventing the entrance of outside forces, and their interruption of production, by maintenance of an efficient guard force and passive defense system; (2) preventing enemy agents or "saboteurs" from gaining admittance or information, and verifying the identity and loyalty of employees by a program of fingerprinting and personnel investigation, and alien and visitor control; and (3) maintaining close contact with the attitudes and morale of employees through recognized intelligence channels, that enemy sympathizers may find a sterile bed for breeding discontent. The security section assists plants in carrying forward this three front defense, through trained security auditors, who visit facilities to advise them of better ways of effectuating their security program, and who then can advise the Chief of Ordnance of the protection provided his sources of supply.

In order to coordinate the safety activities of the Ordnance Safety and Security Branch with the industrial health and hygiene activities of the Army Medical Department and the U. S. Public Health Service, General Campbell requested that experienced medical and engineering personnel from these services be assigned to the Office of the Chief of Ordnance, Safety and Security Branch in Chicago. Assignments were made of a medical officer of the Army with authority extended by the Chief of the Occupational Hygiene Branch of the Surgeon General's Office to act for him in initiating and approving industrial hygiene studies in all Ordnance establishments, and of two officers of the U. S. Public Health Service who previously had been engaged in many of the studies conducted in the war industries by the U. S. Public Health Service.

This group, designated as the Industrial Health and

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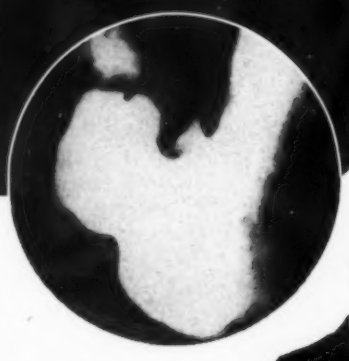

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Hygiene Staff of the Ordnance Safety and Security Branch, works in close conjunction with the safety section and with the advice and helpful assistance of the chief of the section has developed and is carrying out certain definite activities to augment and assist the plant medical and engineering departments in their health conservation programs.

The general scope of these activities may be summarized as follows:

1. Technical advice on all Ordnance Department industrial hygiene matters.

2. Early medical and industrial hygiene engineering consultations to new plants concerning adequate medical and engineering requirements are encouraged. Certain standard health conservation practices for plants have been promulgated.

3. Follow-up inquiries and visits to plants after their receipt of survey reports, to clarify and interpret the reports and to stimulate adoption of recommended practices. To date, the total number of industrial hygiene surveys and resurveys conducted in Ordnance establishments amounts to 77. Members of the group have visited 34 Ordnance establishments.

4. The preparation and distribution of informational circulars on pertinent industrial health and hygiene matters to all Ordnance plants. Material obtained from the Army Medical Department, the U. S. Public Health Service, the Office of Defense Health and Welfare Services, and from other governmental and private agencies also is distributed. Through arrangements with the Division of Industrial Hygiene, National Institute of Health (U. S. Public Health Service) its new Manual of Industrial Hygiene has been sent to each medical department of all Ordnance plants.

5. The planning of conferences on timely health matters with medical and engineering personnel of Ordnance plants, and the preparation and distribution of the proceedings.

6. The promotion of practical field research on matters such as the early detection of occupational disease, the design of equipment for control of occupational health hazards, and other protective measures. All information regarding control measures which are found to be operating successfully in particular plants, and any new or unique method or device which is satisfactorily mitigating a health hazard at a particular operation is made available to similar plants.

7. The stimulation of official plant interest in the serving of inexpensive well-balanced meals, and the establishment of nutritional supervision and education. The U. S. Public Health Service has made available a trained nutritionist for consultation with plant officials wishing guidance in organizing plant cafeteria.

8. The promotion of x-ray examination for tuberculosis of the workers in Ordnance plants. Where adequate equipment is not available in plants these examinations, on request of the commanding officer through proper channels to the Surgeon General, are made available through the Office of Tuberculosis Control of the States' Relations Section of the U. S. Public Health Service.

9. Appropriate talks on industrial health and hygiene engineering are given by members of the group to safety officers and auditors attending the safety section's training school, and to other groups attending training schools of the Ordnance Department.

10. Recently, plans have been completed with the regional safety and security branches to supply industrial hygiene services to some 200 private commercial establishments handling explosives and assigned to the safety and security branch for continuing protection responsibility. By arrangement with the Public Health Service, the various official state and local bureaus of industrial hygiene are being asked to participate in this program, wherever available.

11. The development and design in cooperation with the Office of the Field Director of Ammunition Plants, of engineering control measures and in particular exhaust ventilation systems, for the control of atmospheric contaminants, where they have been found both by medical and engineering findings to present serious hazards to health. Owing to the nature of many of these contaminants, special design features must be observed to prevent the introduction of serious explosives safety hazards.

In its work, the industrial health and hygiene group maintains intimate contact with the Occupational Hygiene Branch of the Surgeon General's Office, the Division of Industrial Hygiene, National Institute of Health, and other government and non-governmental agencies. Acknowledgment is made for the assistance given by these organizations.

While there remain many unresolved problems requiring careful study, it is believed that substantial progress is being made in the conservation of health among our industrial workers.

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Tuberculosis Case Finding

—Problems in Industry—

JULIE E. MIALE, R.N.,
Director, Industrial Chest X-Ray Service,
Queensboro Tuberculosis & Health Association

STUDIES carried out in England for the past few years have revealed an increase in the tuberculosis rate since the present war began. This was particularly true in certain regions, such as the more industrialized areas. And yet, one could almost anticipate such a rise as a result of the institution of long working hours, crowded living quarters, rationing of food, and other trying conditions brought about by the war. All these undoubtedly played a part in reactivating preexisting disease, with resulting spread to others.

Ever since we entered the conflict it had been the hope of the tuberculosis associations that some means would be found to prevent a similar rise in this country. With this thought in mind, a joint enterprise was conceived and sponsored about one year ago by the Queensboro Tuberculosis and Health Association, the Department of Health of the City of New York, and the Queens County Medical Society. The plan, in brief, was to x-ray entire industrial plants as a tuberculosis case-finding measure. In undertaking this project, the tuberculosis association provided a worker to act as a promotion agent, contacting management and labor. Another function of this worker was to make all necessary technical arrangements with the plant medical department and personnel heads. This comprised many details, such as proper space, equipment, and coordination of the various departments as to the time and place for work. Education was another important problem for the worker, and this was carried out by means of movies, lectures, literature, handbills, exhibits, and posters.

The Department of Health provided funds for the x-rays, clerical assistance, and personnel to interpret the films. They also handled the follow-up work necessary for the clinically significant cases.

The first approach in promotion was made to the labor leaders, who represent the interests of the worker

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When minor injuries are treated promptly with NEW-SKIN Antiseptic Covering, loss of time is reduced to a minimum. NEW-SKIN protects cuts, burns, abrasions from dirt and dust . . . lessens danger of infections.

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and usually show an awareness of health problems. Depending on the individual enthusiasm, some unions attempted to follow through by prevailing upon management to allow them sufficient time and space in the plant to hold x-ray sessions. In each case, it was necessary to convince the management of the value of the procedure.

Arrangements were made in several plants to x-ray workers on company time and on company property. Movies and lectures were held at union headquarters several days before the x-ray date. These were repeated at various times to take in all shifts. The management at one plant would not consent to interrupt work even for a short time, so that, in that particular plant, x-raying and education were done on the employees' own time. The x-rays were taken in union headquarters, a few doors away from the plant. An interesting feature was that where x-rays were taken on company time the percentage turnout ranged between 85% and 99%, whereas in the plant where employees' own time was necessary, not more than 60% appeared for x-ray.

Some plants were approached in a somewhat different manner. Direct contact was made, in each case, with the medical department head or the president of the firm, and initial consent obtained. Then every effort was made to contact various unions; wherever possible, conferences were arranged with the shop foreman. On these occasions, the program was explained and questions answered regarding estimated prevalence of the disease and the importance of the tuberculosis control program in industry. In all instances, handbills, literature, and posters were distributed to each and every worker. Application forms were attached to each handbill, and workers were urged to come for x-ray at a specified time. In most cases, the shop foreman regulated the stream of workers to the x-ray machines by sending them in according to various departments. In the above instances, the turnout was about 75%.

It is interesting to note that at one plant, our first approach was made to the union, which at that time, was not completely organized. The union approached the management for consent to proceed with the project in the plant, and was turned down. Our representative, at a later date, called on the management and gained consent to carry out the program on plant time and on plant property. The response was approximately 80%. This clearly indicates that even though the union was in sympathy with the program and supported it, they were unable to gain support of management, whereas the tuberculosis association, as an impartial agent, succeeded.

In all the preceding ventures, the reports of x-rays were confidential. The individual or the physician designated by that individual was notified of the results. The company physician was not notified in any way as to the findings or names of those x-rayed. A number of companies registered gross disapproval of the program. They felt that they should be notified of conditions in their plants, since they knew the problems involved.

The program as discussed above included 12 industrial plants, and was done within a period of four months, when the Department of Health, because of lack of funds and personnel, was forced to withdraw from the project. There followed a period in which this association attempted to interest management and labor in continuing the program on the basis of one dollar per x-ray. It was suggested that this might be divided, with management paying half and labor paying half, and, where this was not possible, a 30-30-40 arrangement, with management paying 30%, labor 30%, and the tuberculosis association, 40%.

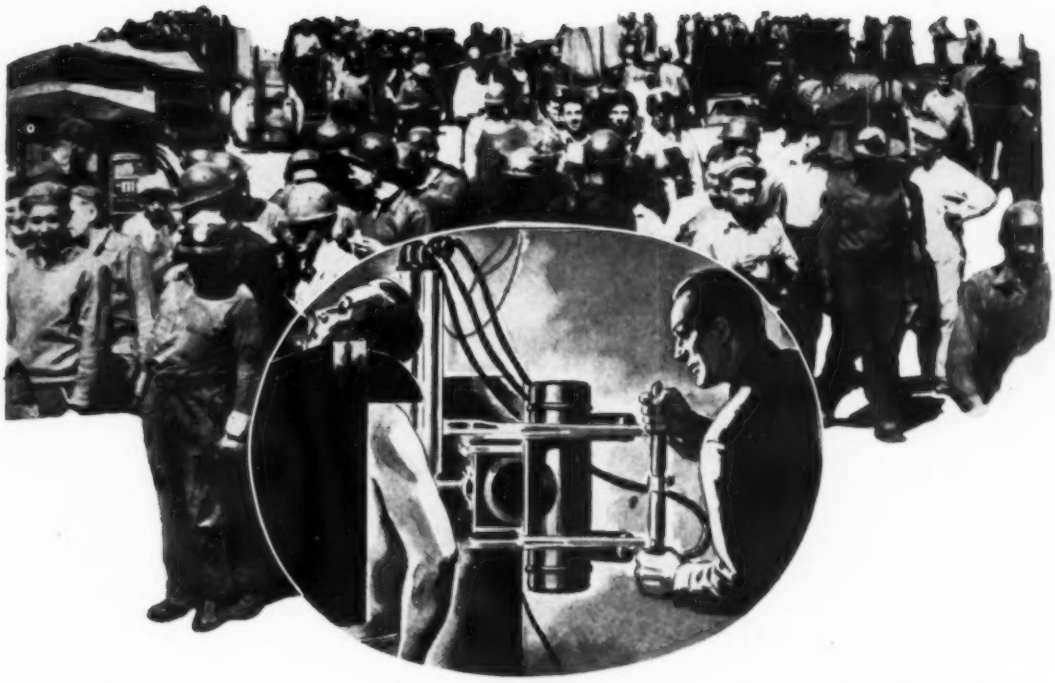
In October, 1942, several small plants consented to have their employees x-rayed, with each man paying a dollar for an x-ray. The x-ray unit was set up in the plant, and workers were given ample time to get to the machines. Literature, handbills, and application cards were distributed a few days before the date of x-ray. Interest seemed to have been keen, and management and labor alike worked diligently to urge all employees to appear. In each instance, the turnout was less than 50%. Both management and labor were at a loss to explain the poor attendance; both expressed the belief that it may have been the fee, although wages, in these instances, were good. A request that we repeat the procedure at a later date came immediately. It was felt that a better turnout might be expected, since new procedures, although sponsored by both management and labor, were always feared.

More recently, a plant of 7,000 employees was x-rayed in our program. Management and labor agreed to split the cost of the x-ray along with the tuberculosis association (30-30-40). The general program was set up and continued for two weeks, taking in the day and night shifts. Since we knew that a program of this type must have the cooperation, approval, and good will of management and labor, preliminary meetings were arranged with management, workers, organization leaders, medical department, publicity department, and safety director. Plans for the entire program were discussed. Preliminary discussion included lectures and movies before union groups. These were given at 5 A.M., 4 P.M., 8 P.M., and 10 P.M., to take in all the shifts. Exhibits were displayed in each building as the program proceeded. The public address system was used at noon time for the day shift, and at 11 P.M. for the night shift, to inform all employees as to the progress and purpose of the survey. In some instances where the percentage turnout in a particular department was low, that department was mentioned and an attempt to stimulate 100% response was made. This usually was successful. The plant and union papers published an article on the x-ray program one week prior to the set-up. Complete cooperation was obtained from the medical department. Workers seemed to have confidence in the nurses and doctors, and were therefore participating wholeheartedly. Nurses in each building concentrated their efforts on the x-ray program during the two-week period. They personally supervised the order in which the men came to the machines.

Success was due in part to the groundwork done prior to the inauguration of the program. Assurances were given the workers that (1) findings would be treated confidentially, (2) any worker that would be excluded from work because of tuberculosis would be given a leave of absence, (3) workers would be reinstated when well, and seniority ratings maintained, and (4) each worker who had to be excluded would receive his salary for a given time depending upon the length of service.

In that plant, approximately 85% of the employees had their chests x-rayed. Interesting to note is the fact that nearly all of those people not reached were in the white collar groups—office and clerical workers, guards, etc. They expressed disapproval of any "mass" program, although they agreed that basically, it was a good idea. Both management and labor expressed the hope that a definite policy would be evolved to make the procedure a mandatory one.

With the experience gained from the above studies, the Queensboro Tuberculosis and Health Association inaugurated in January, 1943, a complete industrial roentgenographic and educational program. The procedure, although it varies with the individual plant, follows a general plan, as outlined below.



X-RAYING *the* INDUSTRIAL ARMY

The Council on Military Affairs and Public Health, of the American College of Chest Physicians, have pointed out* the importance of giving our War Workers the same protection against tuberculosis as our fighting men. Mass surveys by chest x-ray examination are strongly advocated. Various types of satisfactory equipment have been developed to handle large numbers of subjects rapidly and effectively.

In every type of equipment for this purpose, one of the most important considerations is the capacity of the x-ray tube to handle the work at the desired rate. At the same time, radiographic quality must be maintained at as high a level as possible.

Both the ultimate in radiographic quality and unlimited capacity for rapid chest survey procedure are combined in the Machlett Dynamax "25" Rotating Anode Tube. Subjected to rigorous daily service in many of the busiest Army Induction Stations, Dynamax "25" tubes have more than fulfilled every requirement, as to life, quality of results, and operating economy.

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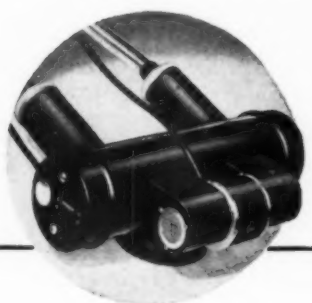
Ask your x-ray dealer, or write us, for full information regarding the Dynamax "25" and its amazing capacity for continuous operation.

*"*Tuberculosis in Our Industrial Army: An Appeal to Management & Labor.*" Diseases of the Chest, *IX*, 3, 287.



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Planning and Promotion

MEETINGS are arranged with plant management to discuss the project. In most cases, it is found advisable to arrange conferences with management, medical and nursing departments, safety director, personnel, and union leaders. At these meetings, an educational program is outlined. This includes movies, lectures, and the use of literature. Plans are made for the use of the public address system at lunch time. Monthly poster and bulletin service is established and is continued after the mass x-ray is completed.

Equipment and Procedure

A PORTABLE x-ray unit is used. The x-ray equipment is set up in the plant, and various departments in turn present themselves for x-ray. Approximately 100 to 125 are taken per hour. Following that, a monthly, bi-monthly, or weekly date is set aside, depending on the plant turnover, when x-ray equipment is again set up in the plant, and all new applicants are x-rayed. In small plants, where the number of new applicants is low, application forms are left with the plant medical or personnel offices, and the applicant is sent to the tuberculosis association's central location for x-ray.

Follow-Up

ALL INDIVIDUALS whose paper x-ray reveals significant abnormal changes are referred to our consultation chest clinic. There, a chest examination is made by a chest specialist, and a celluloid x-ray is taken. Complete findings are sent to the company physician. Recommendations are made as to whether or not the individual should be permitted to continue working. In the instance of arrested cases, where they are permitted to work, the chest consultant advises as to how often it is necessary to re-check the individual, so that at all times, the plant will be informed of the status of the employee's chest condition. The follow-up examinations, which are to include chest x-rays, are henceforth carried out by the employee's private physician. When clinically significant tuberculosis is discovered, the individual is immediately referred, with the findings, to his private physician or to a clinic of his selection.

Cost

THE FEE for the paper x-ray is one dollar. For any case referred to the consultation service, an additional fee of two dollars is charged. The entire sum is absorbed by the firm.

A procedure as described above can be economically incorporated into an already sound plant medical program, as a means of determining physical disabilities among new and prospective employees as well as those already employed. The smaller organizations, who do not have medical units, may be persuaded and encouraged to give increased attention to the health and welfare of the worker. Large industries have found that the investment pays dividends. Loss of time due to illness is decreased, and, therefore, productiveness of the employees as a unit is increased.

At present, we have inaugurated a complete program, as described above, in five plants. We now know that a tuberculosis control program pays, and management will take on the expense of the procedure. We now know that if sufficient cooperation is obtained through worker groups and a thorough job of education is done within the plant, a complete tuberculosis program must meet with success. We also know that this work is sound and fruitful. Labor and management can cooperate, will cooperate, and must cooperate for the benefit of all.

Emergency Sickness and Immediate Care

HARVEY BARTLE, M.D.,
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THIS subject suggests an important role in the industrial health program. It is probably the most intriguing problem to be encountered. The successful discharge and performance of this particular service should be a safe criterion on which to predicate an opinion and sober appraisal of the quality and character of the entire health service of which it is a component part. Gross inadequacies in emergency care will be reflected in the broader aspects of the entire health program.

In the thinking of the average non-medical person, anticipated, planned or urgent medical relief in physical or mental distress is paramount. This is the resultant of the accumulated impacts through the years, now more evident with the existing progressive social urges in socio-economic welfare and civic betterment. As an observation, we note that the appearance of a doctor in a group usually allays the sense of perturbation or fear, since his presence gives a feeling of security.

Immediacy is the basic thought, and logically follows all of the medical thinking and practice captioned Emergency. The word is well chosen and significant. Its connotations create a responsibility on the part of those within call who are capable of rendering alleviating assistance.

Practically and legally, any mentally and physically matured person can render first aid treatment; the after care must be under the supervision of a licensed physician.

The persons who are qualified to render assistance are:

1. The average person in a limited manner.
2. The trained first aider. These are a very splendid group of interested and enthusiastic persons who are surprisingly capable.
3. The registered nurse.
4. The licensed physician, in the area in which he functions.

For obvious reasons we shall restrict our discussion to the last two groups; the registered nurse and the doctor.

Emergency sickness is broad in its coverage, and includes a wide range of activities. The basic cause is physiological dysfunction, differing from accidents, the cause of which is trauma. Emergency accidents call into play the mechanics and art of medicine and surgery, while emergency sickness runs the gamut of medicaments and therapy in the art and science of medicine.

The ever changing therapeusis, with advancements so startling and revolutionary, cause the doctor to be alert and studious to cope properly with modern medical problems. The therapeutics of a generation ago are a foreign language to the average intern today. There may be a tendency on the part of the older doctors to depend too much on the detail drug man, rather than on refresher courses to make him therapeutic wise. Diagnosis may become a close second to this pernicious habit, if the doctor finds security in a salary rather than competitive professional acumen as a motivation.

These are the twins, diagnosis and treatment, which implement every successful medical service in emergency sickness.

There is a definite cleavage between emergency accident and sickness service which must be recog-

...by stepping three times over a grave...

Women of a certain Moroccan tribe believe that stepping three times over a newly-made grave will prevent pregnancy.*

• In placing Ortho-Gynol on the market as a prescription product, the manufacturers have continually borne in mind that this preparation must be scientifically compounded, meticulously controlled through laboratory surveillance, and that its properties must share the same high degree of uniformity required for all acceptable medicinal preparations. Thus, though Ortho-Gynol comes in contact solely with the vaginal mucosa, its manufacturers have applied all serious effort to insure the physician of absolute safety in its continued use, as well as maximum possible effectiveness.

ortho-gynol
VAGINAL JELLY

*Himes, *Medical History of Contraception*

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nized to avoid doing violence to the entire practice, excepting minor complaints, which are frequently under-evaluated. While sickness is no respecter of persons, in this category there are basic variables among workers in industry, namely:

We have the rugged workers in the basic industries, those in the heavier machine plants and foundries; the less rugged in light manufacturing concerns, such as the automobile and electrical manufacturing industries, clothing makers and many others, all of whom work in a protected environment, and finally the white collar workers, supervisors and executives. These factors should certainly involve the emergency sickness problems.

The transportation industry is concerned chiefly with the employees. However, there is an enlarged field from which it may expect requests for emergency sick aid. We refer to the travelling public. This latter group presents intriguing problems, requiring cleverness and skill in the handling of them; no small task. It embraces all classes and kinds of people, from the intelligentsia to those in the humblest walks of life, necessitating at times extreme refinements in rendering aid.

The increasing employment of women introduces variables incident to sex. There may be other factors, the increasing instances of exposure to dust, heat, cold, chemicals, gases and other deleterious things, the exact nature of which should be known.

A large percentage of emergency sickness may be inconsequential. However, we have no moral or professional right to so dismiss them without proper, thorough and deliberate consideration.

The registered nurse can render a real professional service in a first aid program; her training and experience qualify her admirably for this specific task. The nurse is, of course, restricted in her activities by state laws and standing orders. When properly coordinated in an industrial health program there should be no embarrassment, but, on the contrary, a most helpful addition to our personnel. The experienced doctor and nurse have tact, knowledge and wisdom; the inexperienced will surely attain the same sooner or later.

There should be a definite pattern or attitude of approach in our thinking:

1. The relief of distress, physical, nervous, mental or emotional.
2. Environmental contributing factors, exposure, etc.
3. The need of after care, and the how, when and why to secure it.
4. Restoration to a normal socio-economic status of the patient.

IN PLANNED thinking, a routine arbitrary grouping of possible emergency sickness cases, according to definite headings, may be helpful, namely:

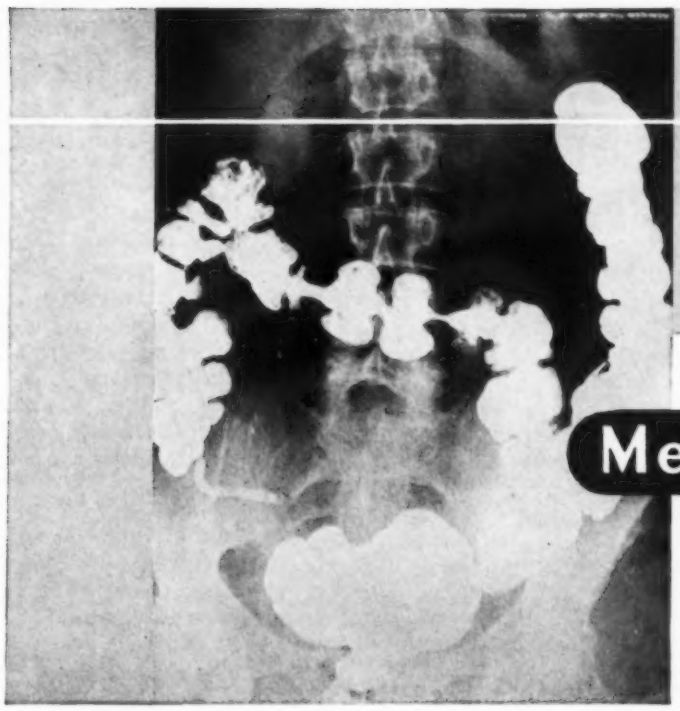
Pain—Blood: hemorrhage, shock, anemia—Lungs—Heart: neuralgia, function, decompensation—Blood Pressure—Urine Retention—Unconscious Attacks: epilepsy, diabetic coma, insulin shock, uremic coma, apoplexy, sub-arachnoid hemorrhage—Abortion—Hysteria—Neuroses—Psychoses—Alcoholism.

Pain is the most frequent cause of personal distress, the one predominant symptom for which relief is sought. Paraphrasing: "To relieve, or not to relieve, that is the question; whether it is nobler in the minds of the profession to permit the stings and arrows of outrageous pain, or by the needle end them."

There are two kinds of pain, mental and physical, the latter is the most frequently encountered, although both are entities. Relief is, of course, the objective sought by the distressed person. As pain is reflective in character, relief is neither easily nor wisely given without proper consideration of the basic cause, which should certainly be persistently sought. There may be limited facilities and implements in places adequately to assist in a finished diagnosis, therefore, a reasonable chance to relieve pain may be greater than the fear of masking symptoms, if the patient is followed through to after care and further examination. Persiflage will not suffice. Morphine sulphate is the time honored drug at our command. If it is judiciously used, the infrequency of its absolute need will be surprising. Other drugs, real adjuncts, although not rapidly efficacious, are codein sulphate, phenacetin and acetylsalicylic acid. It is unfortunate that the last-named is so extensively publicized. The barbiturates and a host of other drugs and chemicals dispensed in many colored capsules, with and without rings, are appearing with an ever increasing number of names, mystical in character, to confuse the doctor and favor the manufacturer's sales.

As to pain in the head—headache, migraine, neuralgia, sinusitis, cerebral arterio-sclerosis and hemorrhage are most frequently the causes. The first four are usually easily recognized. The emergency care may appropriately be analgesic medication, providing it is followed by immediate after care. The simple headache is usually cleared up by a pellet, which the average person has available, the result of the profuse advertisements of the radio announcer. The victim of migraine presents an appealing picture to the innocent by-stander. To the patient, migraine is a repetitive distress. He may have his favorite ampoule or injection, otherwise we can only wisely suggest an analgesic, rest, diet and other medication to be obtained from his personal physician. Neuralgia and sinusitis should be relieved and directed to proper further consideration and treatment. Pain in ear, eye and mastoid should be referred promptly to the specialist. Oil of cloves carefully applied may relieve pain in decayed teeth, only as an expedient. The last two cerebral conditions—arterio-sclerosis and hemorrhage—challenge the doctor in diagnosis and emergency care; sedatives are indicated, rest, inactivity, cold applications to head and warmth to the body; "blood letting," so frequent in a former period, may appropriately be done in selected cases. The seriousness of these conditions warrants extreme measures. Years ago a nationally known military man had a cerebral hemorrhage enroute south. When we arrived in response to an emergency call, we discovered a nationally known doctor on the train had previously given the patient a hypodermic injection of strychnine sulphate. We thought it ill advised, as in that period strychnine was considered a heart stimulant; the doctor said his lips were blue and he needed a stimulant. We could not rationalize the thought. The patient died. He might have done so with any other treatment.

Pain in the neck or shoulders may result from myalgia, cervical arthritis causing referred pain, and sub-arachnoid hemorrhage; the former can be relieved readily temporarily, the last is a grave condition. While emergency relief may abate the intense pain incident to sub-arachnoid hemorrhage, there is a grim outlook; the opinion of a neuro-psychiatrist or neurosurgeon is imperative. The reflex heart pain in left shoulder and arm is quite well recognized by the coexisting pain in the heart of an impending character. The term angina pectoris should be studiously avoided. In the emergency phase, perhaps neuralgia of heart may be less ominous and yet true, unless it is neces-



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Indications—Chronic constipation, various forms of colitis, pre- and post-operative cases, hemorrhoidal conditions, the constipation of pregnancy.

Average dose—One rounded teaspoonful, stirred in a glass of milk or other liquid, followed by an additional glass of liquid.

Supplied in 1 lb., 8-oz. and 4-oz. containers.

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sary to make a decided impact on an uncontrollable patient. Nitrites are imperative; without them the doctor is practically helpless. Angina pectoris is probably the only sickness emergency in which life can be saved when the patient is near the brink, by proper medication, amyl nitrite pearls. After care is most important. The differential diagnosis of angina pectoris and coronary occlusion may be difficult at times.

Pain in the Chest. Perhaps the pain of greatest moment is that incident to coronary disease, thrombosis or occlusion of part or the entire right or left coronary artery. The recognition of this entity has been developed during the past two decades. The conspicuous symptom is a peculiarly distressing pain, sub-sternal, epigastric or nearby. Co-existing symptoms are shock, change in pulse and blood pressure. Emergency treatment is very important, and consists of absolute rest and cessation of all activities, relief from pain and maintenance of normal bodily warmth. Failure to recognize this condition is almost unpardonable. Rigid emergency treatment is absolutely necessary until the doctor rendering such care turns the patient over to his private physician or cardiologist personally. It is much better to be wrong in a positive diagnosis than to fail to recognize a real attack.

We may also have pain ushering in pleurisy or pneumonia, which should be treated symptomatically and referred promptly.

The next region is the abdomen, in which is encountered pain in gastric or duodenal ulcers, inflammation of the gall-bladder and ducts, pancreatitis, pyloric and intestinal obstruction, diverticulitis or perforation, hepatic, renal or cystic calculi, cystitis, all of which may be temporarily relieved and referred for permanent care, excepting the perforated diverticulum, or other perforation, which should be sent post haste to the surgeon.

Appendicitis, discussed so much in former years, needs no special emphasis today. Avoid all medication except application of ice bag, and refer to the surgeon for immediate blood count and surgical care.

Emergency gastric distress of a simple nature, probably resulting from a vasomotor disturbance, is frequently encountered among persons riding in trains and automobiles or under similar circumstances. The symptoms are mild shock, pain, nausea and a general feeling of sickness, which is so descriptive. A so-called white medicine, the ingredients of which are aromatic spirits of ammonia, magnesium carbonate and peppermint water has been found to be effective, satisfactory and a generally pleasant medicament. This comment seems appropriate at this time in our discussion.

In the females we have the disturbances with the female generative organs, which as a rule are not emergency except possibly ruptured ectopic pregnancies, which demand immediate hospitalization. Pain in the lower extremities may be a symptom of sciatic, myalgia, orthopedic conditions, not strictly emergency.

Pain in the back, dorsal, lumbar or sacro-iliac region is frequently encountered. The sickness aspect is often relieved by analgesics or strapping or physiotherapy. In these cases an accurate diagnosis is essential, for obvious reasons.

Hemorrhage, Shock and Anemia. Cerebral hemorrhage has been discussed. Nasal hemorrhage may require plugging the nares. Hemorrhage in an eyeball calls for cold applications locally. Hemorrhage in lungs demands rest and cold applications to the chest, and hemorrhage in gastro-intestinal tract may require immediate surgical care. In shock, emergency care includes maintenance of normal body temperature, rest, and the availability of blood plasma and its use as a preventive and curative measure.

Virus and other disturbances in the upper respiratory tract may be alleviated by local treatment or by the use of analgesics. When fever exists of 100 or above, properly checked, the patient should be advised to discontinue work.

Lungs. Most conditions encountered in the lungs should be referred to the patient's personal physician; asthmatic attacks may be relieved by administration of adrenalin; foreign bodies require the attention of the bronchoscopist.

Heart. We have discussed this subject also under pain. Decompensation, with its symptom of dyspnea, edema, weakness and rapid weak pulse, demands rest, heart stimulants and general inactivity until the personal physician institutes a definite after care. Functional disturbance, irregularities, rapid or slow heart action, and changes in volume and force of blood flow, call for rest, stimulants for minus side and sedatives for the positive side.

Blood Pressure. The most important feature relative to blood pressure is the discussion of it with the patient; figures should not enter into the discussion. The patient does not know the significance of blood pressure, nor does the doctor—why discuss it? Extremely high or low blood pressure should be appropriately given sedatives or stimulants.

Retention of urine requires catheterization.

Unconscious Attacks. The most frequently encountered are epileptic convulsions, the bane of the industrial physician, as he is so powerless to remedy the condition. The emergency care consists of loosening clothing, removing foreign bodies in the mouth and putting the patient in a safe place. The onlooker is really more of a problem than the patient.

Unconscious persons in diabetic coma should be given insulin, and regular insulin users having an insulin reaction should be given glucose intravenously or by rectum, or sugar, candy and orange juice by mouth if they can be so given. When this emergency occurs immediate assistance is imperative.

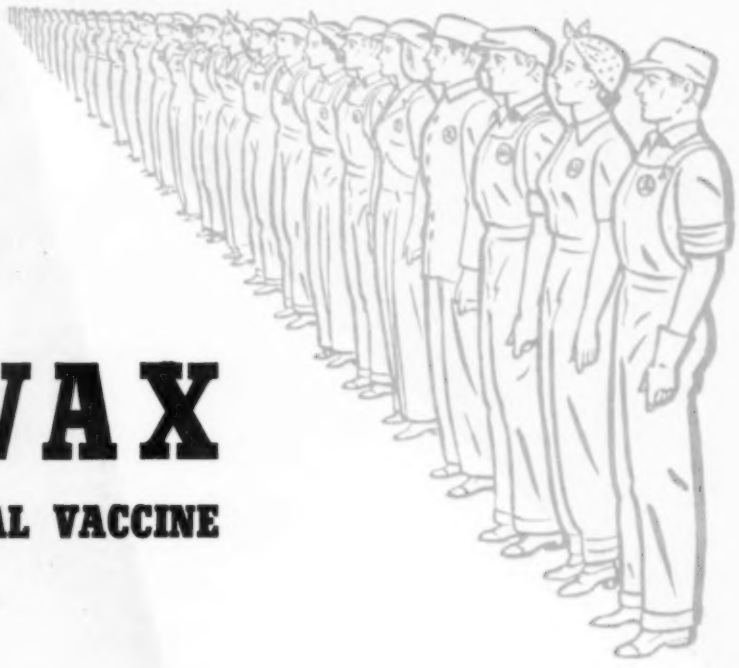
Uremic coma is fortunately a very infrequent emergency sickness and for which little can be done except administer sodium amytal and rush to hospital for intravenous and other medication.

Abortion. Distress following accidental or postoperative abortion should be referred to a hospital.

Hysteria. The emergency treatment may have a favorable or unfavorable influence. Each case is a law unto itself. The nonchalant semi-serious attitude, without too much attention given to the medicaments, is the best approach. Recently a young married man with several children, a splendid fellow, appeared with complaint of blindness in one eye; inadvertently a little too much attention and solicitude were manifest and he ran the gamut of the neuro-psychiatrist, neurosurgeon, oculist, etc., and finally a doctor around the corner cleared it up. Some months later he appeared again, with sensory changes suggesting hemiplegia. He was referred to the neuro-psychiatrist and was informed it would clear up under a neuro-psychiatric suggestion of salt rubs and a regimen. In a few days every vestige disappeared. We await the next manifestation.

Neuroses. Psychoneuroses need the same tactful approach and care. They are the most perplexing problems with which the doctor has to contend. Emergency assistance is frequently necessary and, when rendered, may be of serious portent. There are usually four factors basically involved in these functional disturbances—neurotic background, personal injury, person-

Build up Presenteeism



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ality readjustments and indulgent friends, relatives or medical advisers. Emergency care is needed to prevent their occurrence, again at the initial symptoms, and finally at recurring episodes. Tactfully refrain from medicaments which may have a tendency to build up the complaints on the existing foundational factors. The placebo may do irreparable mental damage. The recurrent manifestations cause perturbation to the busy doctor. Advice is the chief weapon in our hand if wisely and tactfully given.

Borderline cases under neuroses are urticaria and hiccoughs. Urticaria may require the hypodermic use of adrenalin to relieve the distressing symptoms in emergency. Hiccough, or singultus, may be very troublesome and difficult to relieve. When the basic cause is an encephalitis it is a problem for the neuropsychiatrist. Usually anti-spasmodics relieve. In other instances, having the patient stand with both hands and arms extended as high as possible will relieve the contractions of the diaphragm and give instant relief. Mechanics explain purpose and results of this procedure.

Psychoses. The average doctor does not consider mental illness in the emergency category. This attitude or reaction plays havoc at times. It is, therefore, important to recognize mental illness and changes, and not dismiss such conditions as eccentricities. Emergency mental illness may appear suddenly and bring into purview, by fanning into flame, quiscent or latent states. The recurrence of mental episodes in quiescent disease may occur. For instance, the sudden outburst needs sedative medication, the maniacal also needs the same. Patients in a depression may not be recognized as such, very much to the regret of the doctor later; so frequently the depressed attempt to commit suicide, and many do so. Many of the two groups are disoriented, with no sense of social values or conventionalities of life. The treatment of mental illness as an emergency consists of sedatives (sodium amytal), restraint under strict observation and policing vigilance until the patient is placed in proper custody.

Alcoholism. The chief emergency feature is the diagnosis. The inexperienced nurse or doctor may wrongly diagnose other conditions of a serious character. The odor of alcohol on the breath is not a safe criterion on which to base an opinion.

On the borderline of sick and accident emergencies, we have those disabilities resulting from inhalation of noxious gases and deliberate or accidental swallowing of poisons. The best emergency treatment in these cases is rather a prolonged discussion, in reality a field of its own, and it is, therefore, purposely omitted. There are more instances coming within this category than in former years on account of recent developments in the industrial field of plastics, chemicals, war material and many other substances.

The first preparation for practical work by the average medical graduate is to secure an authoritative list of antidotes for poisons. He will learn later how rarely it is needed in the ordinary practice of medicine and surgery. Perhaps the time has arrived when such preparation will come into its own.

This discussion has covered the field in a cursory manner. However, it summarizes one man's experience through many years in a service in which emergencies were numerous, varied, baffling, and extremely interesting.

INDUSTRIAL Hygiene Foundation's Eighth Annual Meeting will be held at Mellon Institute, Pittsburgh, on Wednesday and Thursday, November 10 and 11, 1943.

Post-Graduate Industrial Medicine

—Long Island College of Medicine's Second Course—

TO MEET the continued wartime need for a general training course for physicians in or desiring to enter industrial practice, the Long Island College of Medicine announces its second intensive post-graduate course in industrial medicine to be given in Brooklyn during the first two weeks of November.

The course is modeled on the first series of lectures and seminars in this field presented by the College in November, 1942, in which 59 matriculants from six states enrolled. Enrollment this year will be limited to 50 matriculants for the full period. The course is designed for physicians but a limited number of others will be permitted to attend the sessions as auditors.

The instruction will run from November 1 to November 12. It will consist of afternoon and evening lectures at the College and morning clinics in the medical departments of nearby industrial plants. The lectures will be given by leading industrial physicians and members of the College faculty. The course is under the auspices of the Department of Preventive Medicine and Community Health, and is directed by DR. THOMAS D. DUBLIN, associate professor.

Following the completion of the schedule, additional supervised training in the medical departments of selected industrial concerns will be provided for those of the matriculants who desire to engage in further practical work.

Five of the matriculants enrolled in 1942 elected to take a month of supervised training, and four were aided by the College in finding industrial positions. Thirty-five of last year's matriculants were physicians, of whom 17 were in full-time industrial practice. The remainder were nurses and various industrial observers.

ASSISTING DR. DUBLIN in the formulation and development of the course are DR. CASSIUS H. WATSON, Medical Director of American Telephone & Telegraph Co., alumnus and trustee of the College, DR. JOHN J. WITTMER, Medical and Personnel Director of Consolidated Edison Co., an alumnus, and ALFRED R. CRAWFORD, of the College's Department of Administration.

Thirty-seven lecturers will take part in the sessions. A series of clinical and laboratory demonstrations at the College is planned.

General topics of the lecture sessions, various phases of which will be discussed, include:

The Physician in Industry and His Field.
Planning an Industrial Medical Department.
Evaluating the Health Status of the Worker.
Illness among Workers in Industry and the Compensation Laws.
Community Factors in the Health of the Worker.
Special Wartime Problems in Industrial Medicine. (Fatigue Prevention, Women in Industry, Nutrition, Health and Safety Education.)
Accidents.
Protecting the Place of Work
Surgical Management of Industrial Injuries.
Toxicological Exposures.

As was done last year, texts or outlines of each lecture will be distributed to matriculants following the session, and the complete transcript will be available at the conclusion of the course for purchase by physicians or others interested.

The printed announcement with all details and the registration forms will be available by September 15. Physicians desiring further information or wishing to apply should address the Office of Administration, 350 Henry Street, Brooklyn 2, New York.

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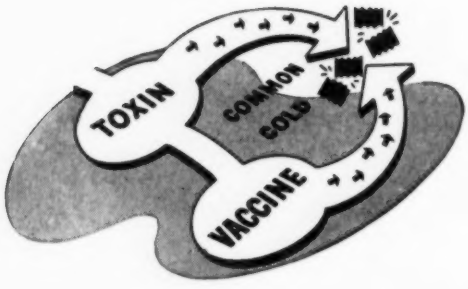

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To obtain greater efficiency, National has combined with the conventional cold vaccine, which up to now has been able to stimulate antitoxic substances only, a homologous toxoid. This combination, named Common Cold Vatox*, *now* enables the body to produce both antibacterial and antitoxic substances and eliminates the necessity of increasing the dosage above 0.5 cc. where formerly 1 cc. was needed to accomplish results. For additional information, write National Drug Company, Dept. G, Phila. 44, Pa.

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External Trauma and Peptic Ulcer

—Analysis of Their Relationship—

ROYAL H. FOWLER, M.D., F.A.C.S.,
Newark, New Jersey

A REVIEW by the writer of the literature on traumatogenic peptic ulcer up to October, 1941, verified only 35 cases published since 1840.[1] A further recent study of 7,050 ulcer cases[2-11] collected at large, places the incidence of primary ulcers resulting from a single blunt traumatism unaccompanied with other severe co-existing injuries at 0.6%. Thus it is seen that a traumatic basis is found in a slightly larger percentage of peptic ulcers than appears in traumatogenic appendicitis with its incidence of external injury in only 0.3% to 0.4% of 13,496 cases studied by the writer in 1938.[12]

There is still a small skeptical group which denies the occurrence of traumatogenic peptic ulcer under any circumstance. In support of the present-day conception of its existence, opinions are held by Crohn and Gerendasy,[13] Raymond and Chene,[14] Eusterman and Mayo,[5] Silberstein,[15] Ruge,[16] Gallagher,[17] and Kellog.[18]

While criteria to establish traumatic ulcer have been already laid down by Lenninger and Molineus,[19] these require modification and a broadened interpretation. The first postulate demands proof of absence of previous subjective gastric complaints. This cannot always be accepted without reservation, for the latency of gastric and duodenal ulcer is well recognized. Perforation and hemorrhage are the first indications of the disease in about 10% of the cases. Laboratory and x-ray findings, which furnish the only incontrovertible proof of normal conditions prior to injury, would be available only under very exceptional circumstances. The testimony of the patient and the family physician as to absence of stomach trouble prior to injury, is usually the evidence submitted in court. The second postulate calls for authenticity of the trauma. Here again the patient's statement is often relied upon to give the manner and details of injury. Witnesses to accidents are not always present, and this requirement of the compensation law is waived at times. The third stipulation is that the external trauma must be direct, blunt force, and of sufficient severity to cause the lesion. Fourthly, symptoms referable to the stomach must be immediate and merge into those of ulcer, permitting a diagnosis by x-ray, operation or autopsy. It is thus seen that the criteria are strict but not to be accepted without reserve, especially with regard to previous history, upon which reliance cannot always be placed and with respect to the authenticity of trauma or even with respect to the operative findings. A fatal case is cited by the writer in which operation failed to disclose an ulcer but which was settled in favor of the claimant.

The following summarizes my opinions:[1]

1. It is submitted that trauma may rarely form the foundation of an ulcer.
2. It is not always possible to determine whether trauma has produced a primary ulcer or activated a latent one.
3. The majority are acute or subacute gastric ulcers (86%) situated on the lesser curvature or pylorus.
4. Seventy-eight per cent of ulcers occur in males.
5. Sixty-two per cent occur between the ages of 20 and 40.
6. The diagnosis of primary ulcer following abdominal trauma is based upon the modified criteria mentioned.
7. Only if signs and symptoms warrant operation or if autopsy findings corroborate the pathology can

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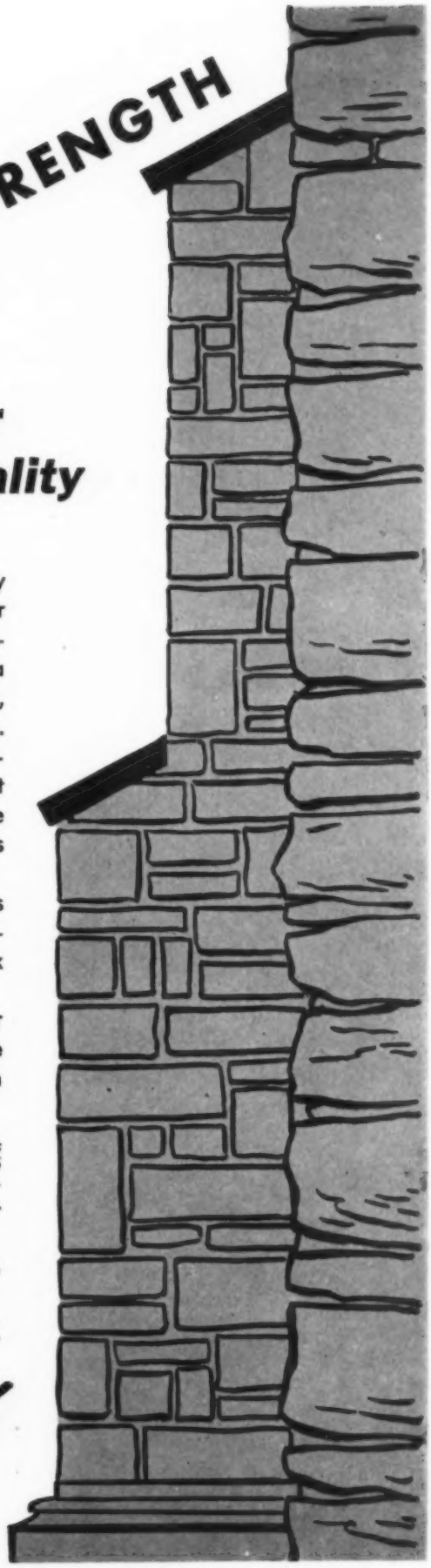

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Dosage: 2 to 4 tbsp. daily for adults, as directed by the physician.

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the diagnosis be made with absolute certainty. The fresh lesion may be variable. A broken down superficial contusion of the mucosa may exist, or an extensive submucosal suffusion involving a branch of the gastric artery may be present. The late finding of an ulcer in the course of a healed linear scar only is pathognomonic of traumatic ulcer (Ruge). Certain other fresh ulcer characteristics may be obliterated by subsequent pathological changes.

8. Of 35 verified cases, nine died of peritonitis, hemorrhage or shock.

9. The general mortality is 46%. The operative mortality is 33%.

10. There are recorded cases of direct intracranial injury followed by peptic ulcer (Ask-Upmark,[20] Van Zandt and Brown[21]). It is thought the lesion is due to stimulation of the parasympathetic centers in the hypothalamus with vegetative pathways to the premotor cerebral cortex. Because of the highly speculative nature of these pathways, peptic ulcer following brain injury should be correlated only after the closest scrutiny.

11. It must be conceded that post-traumatic neurosis may indirectly eventuate in peptic ulcer. Here the mechanism operates through psychic factors of emotional stress on a subclinical ulcer.

The Medicolegal Aspects

NINE litigated cases have been assembled with determinations. Six are compensation cases. Verdicts were equally divided. One compromise settlement was effected. It is striking how rarely insured patients make claim for ulcer following injury. No doubt many are discouraged by their physicians but a certain number, prompted by gain, pursue them. Ruge[16] reports three industrial accident claims in 156 cases of chronic ulcer and three such cases among 38 acute. The incidence of these claims is 3%. Great medicolegal importance is attached to this class. It is incumbent upon experts who appear in court in the interest of justice that they be conversant with the literature in order that they may acquaint the judge and the jury with the facts, of which they are ignorant. Reliance is placed entirely upon medical experts, who must accept or deny trauma as a competent producing cause of ulcer. The evaluation may be difficult. Patients may fail to acknowledge prior existence of the disease in the belief that the claim may suffer thereby, thus basing the claim on primary cause and effect mechanism, or, as the lawyers term it, "Origination." The patient may truly have no knowledge of the disease which, prior to the accident, has been entirely latent. Therefore, there may be a possibility of the previous existence of the disease in either case. Traumatic ulcers give the same train of symptoms as non-traumatic and are subject to the same influences, which determine recurrence. The cases are usually treated medically unless viewed as a surgical emergency. One must then rely upon clinical findings, laboratory aids, x-ray or autopsy to establish the diagnosis. The location of the ulcer is of little importance in determining the issue, for the features of traumatic ulcer are not necessarily pathognomic, as they may undergo changes if operation is delayed long after the injury. The witness is handicapped at the outset by not knowing whether normal conditions obtained before the accident, unless ideal criteria for perfect evaluation are at hand, i.e., a verified absence of gastric and duodenal pathology. We are familiar with complete rupture of the stomach and duodenum following severe violence. It may be argued why may not less severe trauma result in incomplete lesions, or contusions and hematomas, and persist as ulcers? On the other hand, we know that the tendency of experimental and operative wounds of the stomach is toward smooth healing. That subtle something, the milieu, may determine the issue. The evaluation in acute surgical emergencies and in autopsy cases when fresh pathology is visualized is not so confusing. It is the case of falling short of emergency operation or receiving medical treatment and not succumbing, that may present a problem.

Conclusions

IN THE final analysis, the physician must assume an unbiased, judicial attitude and dismiss malingering, exaggerated and unverified complaints, and consider especially the potentiality of pre-existing subclinical ulcer. Positive verification of ulcer viewed in its true relationship should highlight the opinion, without which due skepticism should guide a guarded opinion. There are few cases in which fresh pathology, revealed at operation or autopsy, will undeniably prove primary traumatic origin, but there are many more cases in which ulcer cannot be proved to be primarily traumatic. There is no doubt, that a pre-existing subclinical peptic ulcer can be activated by direct abdominal trauma or indirectly by neurosis the result of injury, on the basis of psychogenic influence.

THE following litigated cases illustrate interesting points:

CASE 1—*Rupture of Duodenal Ulcer Attributed to Strain.* The claimant attempted to lift a pump. It slipped. He twisted himself in an abnormal position and felt something "give way" inside him. He became nauseated and was unable to work for a few minutes. An operation was performed which disclosed a ruptured duodenal ulcer. Thereafter he filed a claim with the industrial commission and the matter was referred to the medical advisory board. One member of the board examined the claimant, viewed several roentgenograms, studied the hospital records and consulted with the surgeon who had operated. The member of the board who made this examination reported that the claimant had a "pathological process" before the accident and that the condition which developed would have developed whether the claimant had been at rest or was lifting. The medical advisory board on the basis of this report concluded that the condition suffered by the claimant was not due to or influenced by any accidental injury. The commission denied compensation and the claimant appealed to the Supreme Court. There is no question, said the court, that shortly or immediately after the claimant suffered strain in lifting the pump he became nauseated and vomited blood, that he was immediately taken to the hospital and given an exploratory operation, and that the surgeon who operated reported that there had been some kind of extravasation of blood into the tissues "between the duodenum and the peritoneum." To the ordinary layman, observed the court, this would certainly indicate that there was some causal connection between the strain and the abdominal condition. But, the court said, the cause of the physical condition of the claimant was, to a great extent, a matter of opinion and not positive knowledge, and expert medical opinion was certainly competent evidence that the commission had the right to consider. The only medical testimony offered was that of one member of the medical advisory board who had examined the claimant and the medical records of the case and had discussed them with the operating surgeon. The conclusion of the medical advisory board was unanimous that the condition was not produced by the strain which preceded it. The court felt disinclined to reverse the finding of the commission.[22]

Comment: It is noted that only one medical witness testified in this case. The judge had no alternative but to accept his opinion.

CASE 2—*Perforation of Ulcer of the Stomach.* In the course of his employment, the claimant was required to "pull up and shake out" barberry bushes. Two or more bushes sometimes would be bunched together with a clump of dirt weighing up to 250 pounds, and the workman would then pull the bushes apart by hand or pry them apart with a spade. While so engaged, he collapsed,

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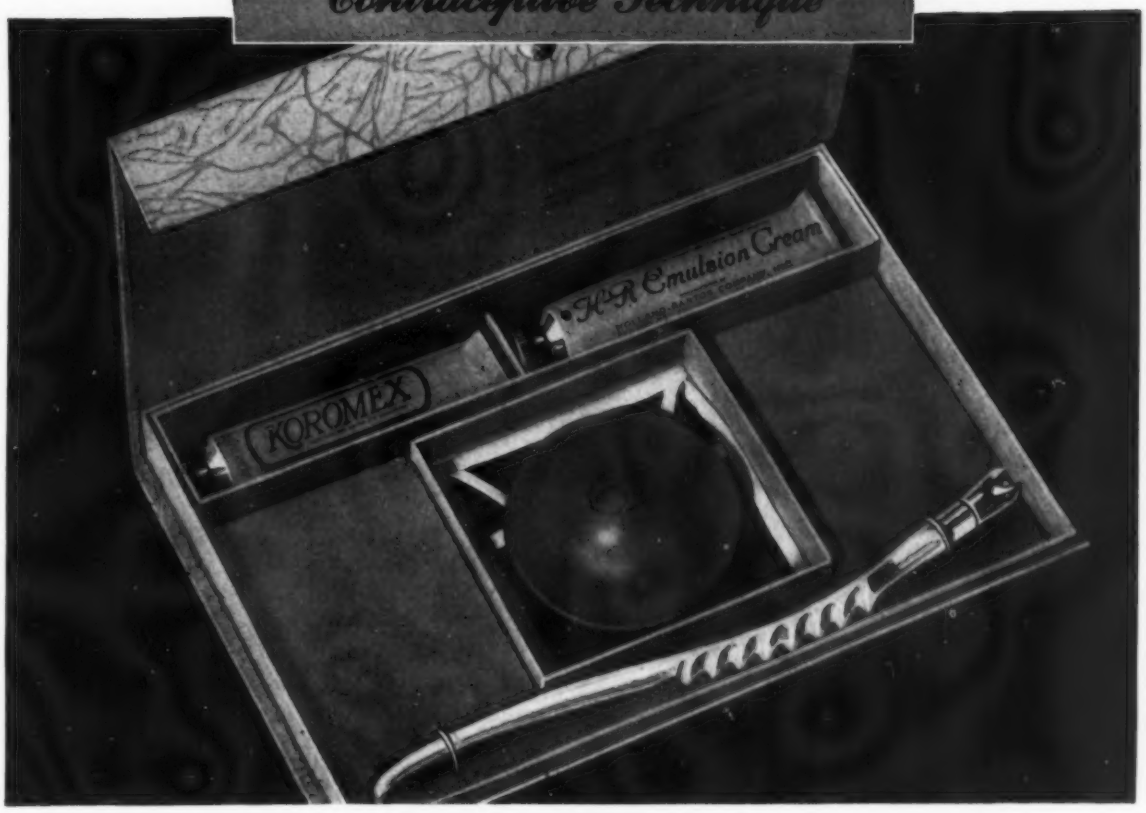

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evidencing distress in the abdomen. The operating surgeon found a perforated gastric ulcer with peritonitis. He died about six weeks later from empyema. His widow instituted proceedings under the workmen's compensation act. She was denied compensation by the industrial commissioner. On appeal, the district court reversed the decision of the industrial commissioner and awarded compensation. The employer then appealed to the Supreme Court. In denying compensation, the commissioner stated that "the record fails to show . . . there was anything in the nature of accident or incident out of the ordinary." From this statement, said the Supreme Court, it is apparent that the commissioner held as a matter of law that the widow could not receive compensation unless she proved that the injury arose out of an accident or unusual incident. But the compensation act (Iowa) only requires, in effect, that the disability be due to a personal injury." In the present case, the workman's employment was exceedingly heavy, requiring much lifting, pulling and prying, thereby causing a straining of the stomach. The workman's physician testified that there would have been no perforation had it not been for the strain of the work, and there was no evidence to the contrary. The death in this case, concluded the court, was due to a "personal injury" within the meaning of the compensation act.[23]

Comment: The testimony of the attending physician, which usually bears great weight in the mind of the judge, prevailed.

CASE 3—*Perforation of Peptic Ulcer Allegedly Due to Strain.*

The claimant showed symptoms of a peptic ulcer since 1916, receiving medical and hospital treatment at various times. In the course of his employment, in October, 1932, while he and a fellow workman were unloading a 200-pound cabinet from a truck, he had to assume a "slightly twisting" position. He immediately experienced severe pains in the stomach, was nauseated, and was forced to stop work. Operation performed that same day revealed a perforation of a gastric or duodenal ulcer. He instituted proceedings under the workmen's compensation act but the industrial accident commission denied him compensation and he appealed to the district court of appeal. The acceleration or aggravation of a pre-existing disease, said the district court of appeal, is an injury attributable to the occupation causing such acceleration or aggravation and hence is compensable. The question to be determined is whether the perforation of the ulcer was the result of the muscular exertion arising in the course of the workman's employment or whether it resulted from the natural progress of the ulcer itself. The medical evidence is in conflict. The workman's family physician testified, in response to a hypothetical question, that the strain of lifting could be and probably was the precipitating cause of the perforation. A physician who had assisted in the operation stated that it was conceivable that a penetrating ulcer might be ruptured from such unusual exertion the result of increased intra-abdominal tension, but that it is not unusual for penetrating peptic ulcers to rupture spontaneously while the patient is at rest. A physician who examined the workman at the request of the commission stated that, in his opinion, it was very improbable that the perforation was the result of lifting. His opinion, was in part based on the fact that the operating surgeon had informed him that no adhesions were present and that a microscopic test had shown the base of the ulcer to be thin and the muscular coat replaced by soft, extremely weak tissue. Because of the conflict of the medical testimony the district court did not feel warranted in disturbing the award of the commission, denying compensation to the workman.[24]

Comment: The absence of adhesions and other findings mentioned are not necessarily valid reasons for denying compensation.

CASE 4. A man, previously free from symptoms, while driving a truck collided with another car. He was thrown forward so that the edge of the steering wheel struck him forcibly in the epigastrium. During the following two weeks he vomited blood three times and had continuous epigastric pain which gradually decreased but

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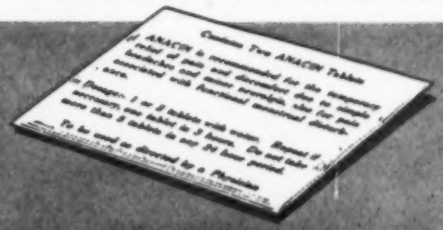

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after a month returned with increased severity. After a year of gradual improvement the pains again became severe and cramplike, radiating along the right costal arch to the back, increased by deep breathing and heavy food, awakening him at night, and partially relieved by food and hot water. There was moderate tenderness and rigidity in the right epigastric region. Gall-bladder x-ray was negative. Barium visualization of the digestive tract demonstrated irregularity and spasm at the pylorus and tenderness over the duodenal cap. There was gastric hypermotility and hyperacidity, occult blood in the gastric contents and a blood stain obtained with the string test. The findings were considered indicative of a chronic irritative lesion of the duodenal and pre-pyloric area. Failing to elicit a history of previous indigestion, the accident was considered an adequate cause of the condition.

Comment: The absence of gall-bladder pathology and presence of pylorospasm on x-ray would not seem to be sufficient to link the accident to pyloric ulcer. An irritative lesion elsewhere as in the appendix might be held accountable, yet occult blood in stomach contents and positive string test speak for ulcer.

CASE 5. A man, 38, had a gastro-enterostomy two years previously for duodenal ulcer. He was relieved of symptoms until three months ago when he fell from a stepladder, twisting himself so that he strained his right side. Attacks of vomiting and pain in epigastrium followed with anorexia, loss of weight, anemia and prostration. His physician believed a new ulcer or re-activation of the old one had resulted from the fall. His stomach was tensely distended and there was an area of tenderness to the left and above the navel. The x-ray showed barium escaping chiefly through the gastro-enterostomy opening which appeared to be contracted. Apparently he was suffering from a gastro-jejunal ulcer. Operation revealed an unheal-duodenal ulcer and patent pylorus. The gastro-enterostomy was faulty, as the anastomosis was made to the intestine, several feet beyond the duodeno-jejunal junction. There was no evidence of gastro-jejunal ulcer but the opening was too small to admit the finger tip. It was maintained that the injury could not be held responsible for the condition.[25]

CASE 6: A woman, 40, with no previous indigestion, fell down nine steps, injuring her right knee, left lumbar region and chest. She immediately and repeatedly vomited bright red blood which preceded a feeling of weakness and nausea. Occasionally there was a sensation of hunger and pain starting and ending suddenly, with absence of symptoms between attacks. There was pressure in the epigastrium, and food seemed to lodge under the sternum. Traumatic peptic ulcer had been diagnosed. The essential points in the examination were tenderness in the epigastrium with slight muscle resistance. The stomach contained an excess of free acid, x-ray of the gall-bladder indicated poor function without stones. Barium meal showed the stomach normal in outline, duodenal cap poorly visualized with some irregularity but not suggestive of ulcer. The duodenum was drawn over to the gall-bladder region. The esophagus was dilated down to the cardia at which point there was delay in the progress of the barium due to a pinch-cock obstruction. The opinion was expressed that there was cardiospasm, possibly associated with esophageal varices, that the latter might be secondary to bile tract pathology, that an ulcer could not be definitely excluded, but there was no justification for that diagnosis; that the vomited blood did not come from the stomach and, if one were to admit an ulcer diagnosis, it could not be attributed to the injury described.[25]

CASE 7: (Personal case.) The following case of perforated gastric ulcer illustrates interesting points in connection with a death claim. The hospital record of J. K., dated October 24, 1940, merely states: While working this man slipped and fell. Investigators obtained eye-witnesses' accounts of the accident. His employer stated: "This laborer jumped out of the trench to get a bag. As he climbed out of the trench, he either stepped on a rock or a piece of wire and fell, landing on his hands. He did not say anything about being hurt. I was later informed that they had sent him to the hospital, complaining of pain in the stomach." Later, supplementing this statement, his employer said: "After stumbling and falling forward when 12 or 15 feet away from the trench, he got up and did not say anything." No history of previous illness could be obtained except pneumonia one year before. The account of a fellow worker, A. M., reads: "Walked up an incline out of a trench and when about 15 feet away he fell forward, got up and walked toward the trench. He did not say anything right away. He tried to shovel. He could not lift the shovel. He said his chest hurt him. He said he fell on something but did not know what. He sat down for a couple of minutes. Workmen carried him and sat him on the grass. He complained that his chest hurt him. He looked as though he was suffering, holding his chest. He did not vomit. The nurse called the police ambulance." This witness did not know whether the man stumbled over an object or not, but another workman, K, claimed he saw just what happened: "About 12 feet away from the ditch he fell forward, stumbling over a coil bed spring, landing on his chest striking a sharp rock. About two hours later he complained of pain in the chest. He was led out of the trench, collapsed twice and was removed by the ambulance to the hospital."

Comment: The accounts of the manner in which the accident occurred vary. Only one witness saw the man actually stumble over a coil bed spring. The cause of death on the death certificate was stated to be perforated gastric ulcer with peritonitis. The hospital record was studied and a conference was held with the operating surgeon. Operative findings failed to show an ulcer of the stomach or duodenum. Ulcer was assumed however because gastric contents were found in the peritoneal cavity. There were no gross food particles. No cultures were taken. No autopsy was performed. The surgeon stated peritonitis was very evident. He considered an inaccessible ulcer existed high up on the lesser curvature on the posterior wall which, however, he neither saw nor felt.

Analysis: The question arises—was the fall caused by excruciating pain incident to a spontaneous perforation of a pre-existing latent ulcer? This occurrence would then be viewed as a coincidence while at work, and disease and not trauma would be the proximate producing cause. It is entirely theoretical that pain caused the fall. Two witnesses stated they saw the man pitch forward but one definitely stated the man fell over an object. Pitching forward might be due to a misstep or stumbling. It is presumed that in the preparation of the petitioner's case every effort will be made to induce the witness to give testimony showing that the fall was occasioned by something other than internal pain.

Opinion: (1) It is assumed that the petitioner was well prior to the accident but had a latent gastric ulcer. (2) If witness K can be located his testimony will show the man stumbled over a coiled spring, thereby favoring compensation. (3) It is further assumed that the accident caused a perforation of an old gastric ulcer, peritonitis and death. While it is not clear from the rcord that the deceased died of a perforated gastric ulcer, the attending surgeon is committed to that diagnosis and will so testify if called. (4) In weighing a theoretical explanation of the mechanism against the testimony of one witness K, the deputy commissioner, it is believed will favor the latter, and hold that the fall caused the perforation. (5) A compromise settlement was suggested. This opinion was accepted and a compromise was made.

CASE 8: The following case of head injury was followed by duodenal ulcer: P. F., age 53, born in Holland, a night watchman, was knocked down by an automobile on November 11, 1933. The car struck the left leg. He was thrown against the bumper, rendered dazed, and sustained a lacerated wound of the forehead and nose, injuries to the left knee and both hands. He was removed immediately to the Newark City Hospital by ambulance, where first aid was rendered. He was then transferred to the Presbyterian Hospital, and admitted to my service.

Past history: About 30 years ago, he sustained a fracture of the nose. Upon admission, examination revealed a middle-aged adult, who was conscious. Temperature, pulse and respirations within normal limits. Examination of the forehead showed a deep transverse irregular lacerated wound, about 4 inches in length, with horse hair sutures

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in situ, and no drain. Pupillary reactions were normal. Nose showed superficial lacerations across the bridge. The left ear canal and the nares were filled with blood (from forehead wound). The left knee showed a large area of contusion on its outer aspect with generalized swelling and restricted motion at the joint. X-rays revealed no fracture of the skull, but an old fracture of the nose. There is a fracture involving the tibio-fibula joint, a scale of bone being detached from the superior portion of the fibula. Observations failed to disclose any evidence of fracture of the skull. Diagnosis, mild concussion of the brain, lacerated wound of the forehead, lacerated wound of the nose. Fracture involving the tibio-fibula articulation. Synovitis, left knee. A plaster cast was applied to the left knee. X-rays later disclosed a healed fracture and a calcified hematoma in the region of the internal condyle of the left femur. Physiotherapy restored normal motion in the left knee. He was laid off by his employer. He was awarded 10% of total disability in March, 1934—3% for head injury with residual symptoms based on traumatic neurosis, and 7% for persistent swelling and calcified hematoma of the left knee. Further increase in award was predicated upon traumatic neurosis in July, 1935, of 10% of total and in January, 1939, another 10%, making an award of 30% of total in all. Suit was again brought, claiming complete permanent disability in 1940, in which the writer again appeared for the defense. The disability was acknowledged by the respondent, but it was denied that it was due entirely to the accident. The history is continued from May, 1937, when he was discharged from my care. He has not worked since the accident, because of continued headache, noises in the ears, dizziness, pain in the stomach after meals, and weakness in the left knee. In January, 1939, he began to have abdominal distress, which has continued and culminated in pain after meals and multiple hemorrhages diagnosed as duodenal ulcer. He was hospitalized under the care of Dr. A. C. Beling in May, 1939, for three weeks and x-rayed at St. Barnabas Hospital. He refused operation. Hemorrhages are said to have been severe. He remained under treatment of Dr. Beling on a modified Sippey diet. Examination March 15, 1940, revealed the following: He appears to have gained weight, which he attributes to milk diet. Examination of the abdomen shows an excess of fat in the wall, which renders examination of the contents difficult. There is some general hyperesthesia to slight touch. No special areas of point tenderness. There is no muscle spasm. No enlargement of solid viscera. The objective findings are negative for duodenal ulcer. The left calf, 8½ inches above the internal malleolus shows an increase of one inch. The left suprapatella level shows increase of ½ inch. Flexion and extension at the left knee are normal without pain. Muscle power is normal. The gastro-intestinal series taken May 1, 1939, indicated the presence of a deformed duodenal cap. The neurologic examination, made for the defense, by Dr. Ambrose Dowd, on May 5, 1941, revealed the following history: "The most trouble is with my head and stomach. Headaches are bad. There are noises in my head like a kettle boiling. I am constantly dizzy. When I bend over, I fall. I had two bad falls recently. I fell against a door one morning and injured the back of my head. Another time I was helping my wife with a mattress and I fell. After I fall I sit and can't speak. I am dazed. I vomit after a severe headache." His wife, stated that her husband has become more irritable and more excitable recently; that he cannot concentrate; that he does not read; that he does not listen to the radio and will not permit the rest of the family to do so; that he calls out, cries and moans in his sleep; that he talks about hemorrhages in his sleep; that at times his eyes look ferocious; that he tires easily; that when he has a severe headache he does not recognize people; that he cannot be managed; that he threatens to destroy his family and himself; that sweating spells are frequent and are usually followed by a swelling of his chest, arms, hands and abdomen. She adds that he is constantly depressed; that he frequently talks about suicide. A great deal was said about gastric hemorrhages; that he has had a number of them, the last one was during February, 1941. He stated that his vision is bad, particularly on the left eye. He has numerous and manifold other symptoms. Examination reveals tremendous excitability and great irritability. He exhibited

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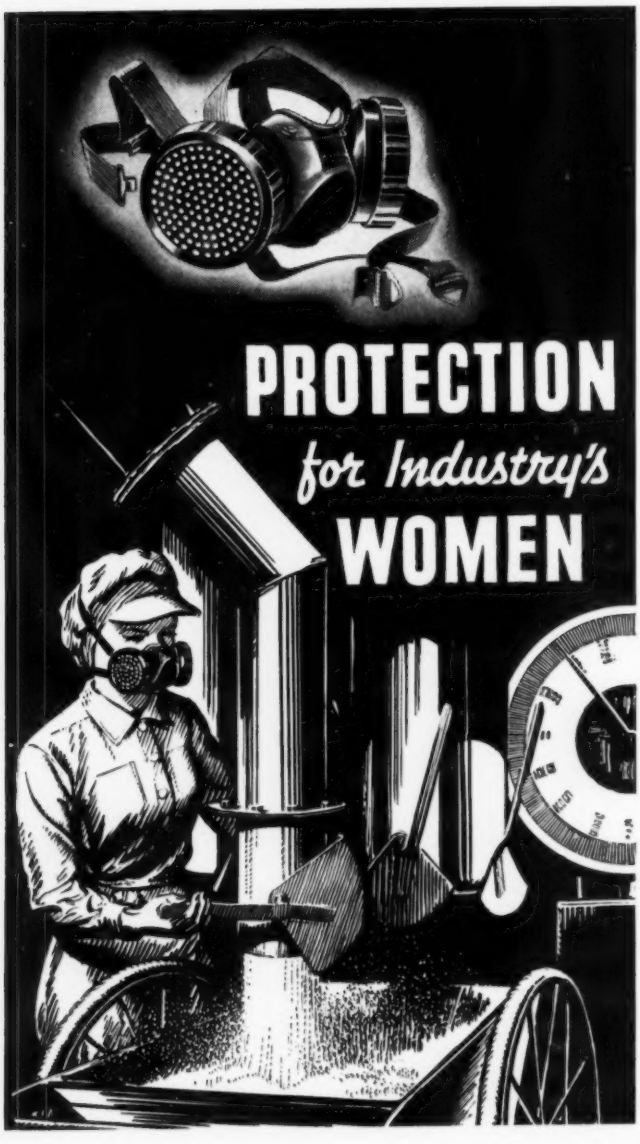

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a peculiar jumpiness. He was suspicious of all who were about him and was laboring under persecutory ideas. He was apprehensive, agitated, confused and depressed. At times he could be interrogated successfully. As the examination proceeded he became more and more tractable and cooperative. His hands are cold and wet. Perspiration dripped from his fingertips. Perspiration ran down his chest from his hair-line to his neck. His face flushed and paled alternately. His lids, tongue, hands and extended and separated fingers are tremulous. He exhibits some nystagmoid movements. His triceps, ulner, biceps, radial, knee, Achilles and plantar reflexes are four plus; he has no pathological reflexes. He is generally hyperesthetic and hyperalgesic. There are many fibrillary and myoclonic reactions of his skeletal muscles. He jumped frequently when unexpected noises were heard. He began to argue terrifically with his wife. His feet were dry but cold and cyanosed. It was evident that the sweating terminated at his hips. He weighs approximately 225 pounds. He has a conspicuously protuberant abdomen. He has a blood pressure of 154/90. There can be no question that this man is suffering from a gastric ulcer. His existing disability, from a neurospsychiatric standpoint, is total. He presents evidences of marked sympathetic and para-sympathetic disturbances. There are no demonstrable signs of brain injury. There are innumerable signs of sympathetic and para-sympathetic pathology. It must be clearly borne in mind that there are well established centers of the aforementioned systems in the cerebrum and that gastric and duodenal ulcers not infrequently result from pathology affecting those centers or their pathways. In any event, he is at this time totally disabled, exclusive of the ulcers. He is unable to work; he is not employable. To rehabilitate him will take a long time; it would be a very expensive procedure; there could be no guarantee of success if attempted. In my opinion he is not malingering. The seriousness of this situation cannot be over-emphasized.

Discussion: It may be claimed that the ulcer resulted from a direct head injury or indirectly from psychic disturbance of post-traumatic neurosis. The latter approach would apparently be attended with better likelihood of success by the petitioner because of the previous awards predicated on the same basis. The report of the neurologist was very discouraging. A conference was held with Dr. Chris. Beling, the neurologist representing the petitioner. At a previous trial the doctor had testified that fibrosis existed in the frontal lobe of the brain. From this conference it appeared that he would again attempt to link up direct head injury with the ulcer, possibly basing his contention on acute ulcer cases cited by Cushing[28] following brain operations. Cases reported by Upmark[29] are of particularly pertinent interest in which actual head injury occurred and in which it was really tempting to try to link up casual relationship with subsequent ulcer of the duodenum. This particular case was not allowed compensation by the Insurance Board—a point in our favor to be cited as a precedent.

Opinion: (1) The diagnosis of duodenal ulcer is confirmed. (2) The head injury was a lacerated wound of the forehead and a mild concussion of the brain. The first head symptoms, except vertigo, were occasional pain and anesthesia of the skin above the forehead scar on February 14, 1934, three months after the injury. From this I conclude that no intracranial injury was sustained at that time and that if a neurological condition developed later, it is degenerative in character. (3) It is probable that not a single, but more than one factor enters into the causation of peptic ulcer. The least understood cause is based on the neurogenic theory which covers head injury. It is acknowledged that perforated peptic ulcers have followed immediately upon operations on the brain and elsewhere resulting in fatal issues with confirmatory autopsies but in some of these there is good reason to believe that the disease was either pre-existent or coincidental and not a direct cause and effect mechanism. In this particular case there is an interval of more than three years between the head injury and development of stomach symptoms, which to my mind, is sufficient to deny causal relationship, with direct brain injury. (4) From accumulating evidence there is reason to give some credence to the neurogenic theory, but it is stressed that it is still a theory entirely speculative

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†LOWELL, S.S.: Psychology and Industrial Nutrition Programs, Indust. Med. 12: 69-73 (Feb.) 1943.

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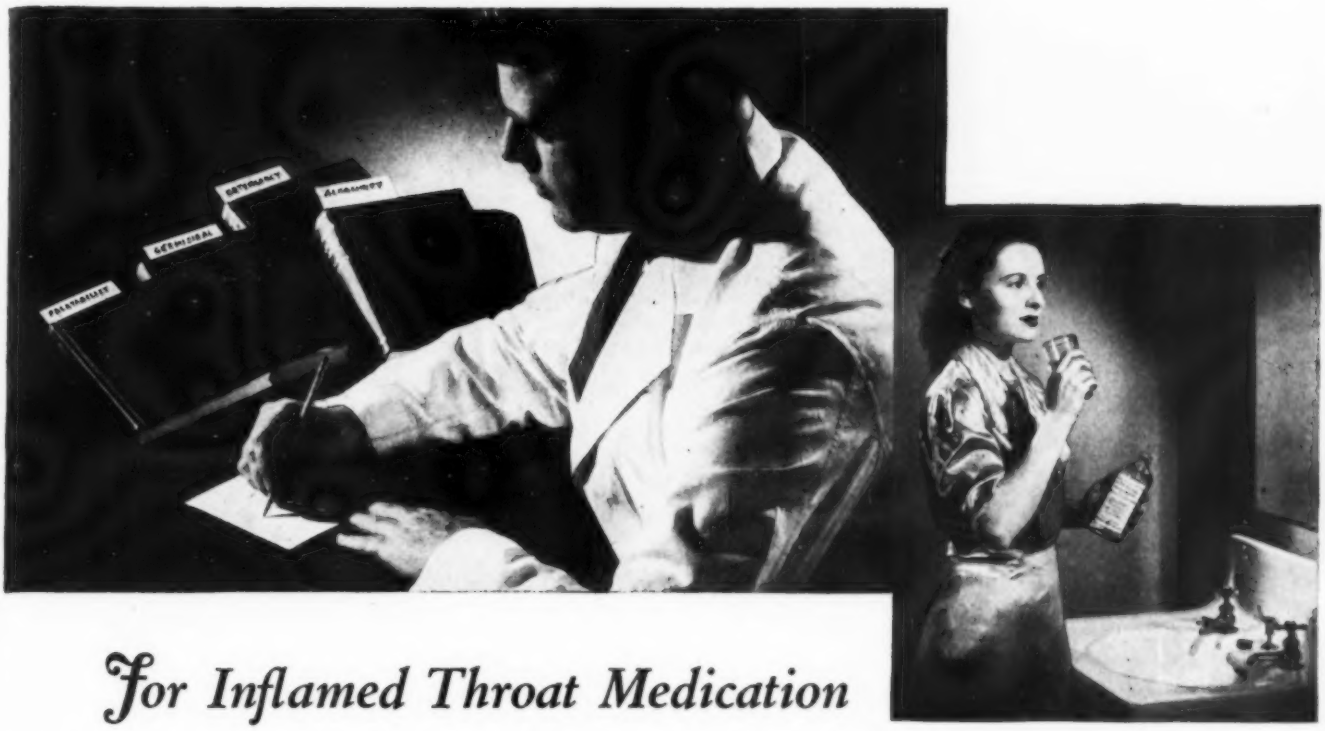
and believed to be without the required proof to give the predominant weight in court. (5) With a few exceptions, in reported cases of head injury, brain diseases or operations upon the brain, with subsequent ulcer formation, the development of symptoms has been *immediate* and the ulcer found on autopsy has been found to be *acute*. (6) The claimant's ulcer did not result from his head injury. From my own observations and Dr. Dowd's report, I am not convinced that there was any intracranial injury. The claimant is distinctly the ulcer type, with imbalance of his vegetative nervous system. The time interval and the chronicity of the ulcer I believe to be our best weapons of defense. This, of course, is also based on the reasoning that there are at least 12 other potential theoretical causes of ulcer and any one of these factors, operating independently of the neurogenic theory, is a potential explanation. I would stress the ulcer diathesis in this case. (7) I think it well to put in evidence cases of acute ulcer following operation other than upon the brain.[27] In order to show that a distinctly different mechanism caused these ulcers quite independently of brain operation, brain disease or trauma to the brain, which must be explained on some other basis. (8) A neurological diagnosis aside from neurosis has not been established. (9) Therefore, it is suggested that a line of reasoning, assuming that the development of disease occurred independently of trauma during the three years interval, such as high blood pressure, endocrine factors, the ulcer diathesis, or cerebral degeneration be invoked from the standpoint of attempting to explain these manifestations on some basis other than trauma. (10) The only conclusive, positive proof of relationship between the alleged incriminated traumatic fibrosis of the premotor area in the frontal lobe and subsequent development of duodenal ulcer would be microscopic examination of the brain postmortem by a neuropathologist. Then only if a circumscribed lesion is found opposite the site of the forehead injury would I grant a hook-up linking it to existing conditions. (1) It is stressed that this man has an obscure disease of his vegetative nervous system. Of the four levels of activity of this system the upper, more recently thought to be highest center located in the frontal lobes, is as yet without confirmation. (12 The increased award at the last hearing, I believe, was based by the deputy commissioner on a late traumatic neurosis, although frontal lobe fibrosis was thought to exist at that time by Dr. Beling. Unless factors other than neurosis, explaining his condition, are brought out by the defense another substantial award, I suspect, will be made in the petitioner's behalf. At the trial the easiest approach was selected by the petitioner. This was based on activation of a subclinical ulcer by injury through the psychogenic factor of traumatic neurosis. The defense could not deny this. The determination by the deputy commissioner follows: The petitioner alleges that his disability has increased beyond the 30% of total found to exist at the last adjudication, and that he is now suffering from a disability which is total and permanent. The respondent agrees that P. F. is at present totally disabled but has taken the position that his disability is not entirely chargeable to the compensable accident found to be sustained by the petitioner. There is no doubt in my mind that the symptoms of the petitioner are honest and *bona fide*. There is no doubt that those symptoms are of a severe progressive psychoneurosis. Medical testimony, coupled with that of the respondent's witnesses, leaves me in no doubt that the petitioner's disability has actually increased since the date of the last adjudication, and I so find. The real issue here presented for determination is whether or not the petitioner's disability is attributable to the compensable accident or to a condition of duodenal ulcer, which, the respondent contends, is unrelated to the accident. The testimony of the petitioner's doctors is that it is a result of a duodenal ulcer. The medical testimony of the petitioner's injuries, the psychoneurosis and the ensuing manifestations have materially increased since the previous adjudication and in turn have aggravated and accelerated the development of an underlying duodenal ulcer, thus producing his present incapacity. The evidence adduced is to the effect that for a long period following the accident, the petitioner possessed the underlying duodenal ulcer. The condition evidently was quiescent, for it is to be observed that at the time of the last adjudication there was no diagnosis made



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of a duodenal ulcer. The medical estimony of the petitioner is clearly to the effect that symptoms such as the petitioner possesses, his intense emotional state, peculiar reactions and mannerisms, easy excitability, extreme nervousness, tension and worry are causative and sufficient factors to accelerate and activate the underlying and heretofore symptomless duodenal ulcer. These facts would, in the opinion of the petitioner's medical experts, have the effect of stirring the ulcer into activity and producing the symptoms which he manifested. The respondent in turn denies this and seeks to attribute the present disability to other possible causes unrelated to the accident or its sequels. The theories advanced by the medical experts produced by the respondent are not as convincing as the petitioner's proofs. However, the rule to be applied in determination of this issue is otherwise. Because the petitioner's condition cannot be established as an absolute medical certainty, does not require this court to leave him without remedy. The legal test is not certainties, nor is it necessary that the mind of the trier of facts should be free from all doubt. It is his duty to decide in favor of the party on whose side the weight of evidence preponderates and according to the reasonable probability of the truth. Nor do the other possible or probable causes have to be excluded beyond doubt. It is immaterial whether the aforesaid industrial accident, which it is claimed caused an injury to the frontal lobe of the brain, is the direct cause of the disability, or the psychoneurosis, which is attributable to the said accident, caused the underlying and heretofore symptomless duodenal ulcer to become so activated as to render the employee totally incapacitated. If the gastric symptoms are due to the psychoneurosis, the same are clearly compensable under the law. It is the end disability resulting from the accident that is compensable and not the injury itself. And the petitioner is entitled to prevail, as it appears by a fair preponderance of the medical testimony that his present condition for which he seeks compensation resulted from or was contributed to by the various forces which the said accident and trauma set in motion. Where the respondent seeks to attribute or charge the petitioner's disability to some cause other than the accident, the respondent must carry that burden. I do not feel from a full consideration of evidence that the respondent has by the greater weight of testimony met that burden. Its argument consisted in the enunciation of theories which find little if any support in the facts as developed by the testimony. The proofs preponderate in favor of the reasonable probability that the ulcerous condition developed when it did as the result of the neurosis and psychoneurosis which in turn was induced by the accident. The undisputed and uncontradicted chain of events which ensued following the accident and the last hearing, together with the satisfactory and convincing medical proofs of the petitioner, compels me to the conclusion that the present disability of the petitioner is attributable to the accident in question.

CASE 9. *N. J. Dept. of Labor, Brown v. Brann & Stuart Company.*

Evidence reviewed, and held: That rupture of a preexisting peptic ulcer resulting in death was a compensable accident under the workmen's compensation act. "J.B., the petitioner's decedent was a man 44 years of age, employed as a laborer on April 18, 1941. He had been in apparent good health so far as outward appearances were concerned, although he was subject, prior to the occurrence in question, to occasional periods of indigestion. From these he obtained relief by taking bicarbonate of soda. The decedent was required to perform part of his duties while standing in hip boots within a pit, the bottom of which contained muck and mud and was described by the witness as being like quicksand. In addition to wielding a pick and shovel the decedent was required to shift and move large wooden butts or piles which weighed upwards of 600 pounds each, fasten a cable or rope about same, and, while two fellow laborers pulled the object from an earthen embankment above, the decedent would lift and then push the heavy object while standing knee deep and with little or no leverage available to him. Those piles had been cut off by the dock builders in connection with the concrete pouring activities incident to the construction job in which the men were engaged. The removal of the piles in the manner thus described was repeated by the decedent and his two fellow laborers as often as the work required. This type of work was described as being very strenuous and in fact one of the witnesses referred to it as 'a terrible job' and 'brutal.' During the first day of his employment the decedent performed the foregoing duties in what was evidently a satisfactory manner. There was no work on Saturday or Sunday, and on Monday, April 1, 1941, he reported for work in his usual state of health and during that day resumed the laboring activities above described. At about 2:30 P.M., while he was within the pit knee-deep in mud, engaged in these activities, he complained that he had a pain in his side from lifting the piles. He was advised to take it easy thereafter, and some of the other laborers assisted him for the remainder of the afternoon. About 4:30 o'clock, while on the way home, he again complained of pain and indicated the right side of his abdomen as the site of his discomfort. Upon reaching his home he appeared to be shaky and ill, and complained of pain in his abdomen. It was of such severity that he was unable to lie in bed and, according to his daughter, he paced the floor in evident pain, appearing to be very ill with perspiration standing out on his forehead. He died on April 23, 1941, after two days and nights of excruciating pain, during which he was unable to recline on a bed. Dr. George J. Kohut was summoned to the decedent's home the evening of the accident and found him complaining of severe abdominal pain and in obvious distress. Upon examination, this physician found rigidity of the abdomen, tenderness, obliterated liver dullness, temperature above normal and rapid pulse. He complained of terrific pain. Dr. Kohut made a diagnosis of a ruptured peptic ulcer and advised hospitalization and immediate surgical intervention. This physician testified that the strain and effort incident to the lifting by the decedent of the heavy piles caused an intra-abdominal pressure which ruptured what unquestionably was a pre-existing peptic ulcer and resulted in his death. The petitioner also produced Dr. Irving Applebaum. Basing his opinion upon a hypothetical question which embodied all of the essential facts, it was the doctor's opinion that the effort employed by the decedent in his work precipitated a rupture of the viscus which led to a generalized peritonitis and death. He believed that the work and effort required of the petitioner in his employment resulted in an increase in the intraperitoneal pressure which in turn caused a rupture of the viscus. Dr. Applebaum was of the opinion that the patient at the time he first complained of pain while working about 2:30 o'clock in the afternoon suffered a subacute perforation which was accompanied by some leakage and, as the lesion progressed, a peritoneal pressure was created which terminated in death. I am satisfied that the petitioner's evidence more than meets the burden of proof which is hers. Careful consideration of the proofs adduced, and all probable inferences deducible therefrom, convince me, and I find, that the petitioner has properly established factually and legally that her decedent met with an accident on April 18, 1941, which arose out of and in the course of his employment, that his death shortly thereafter was causally related thereto, and that she is entitled to compensation in accordance with the statute."

Comment: The only witnesses were lay witnesses who testified for the respondent that no accident was observed by them. No medical witnesses were introduced in defense. The issue here is clear cut. A very proper verdict for the petitioner was entered by the judge. The respondent apparently tried to evade the issue by claiming no accident or cause for action. The case should have been settled out of court.[28]

Mr. Leslie L. Vanderbilt, A.B., J.D., makes the following points: The evaluation of such a disability as that under discussion would not be complete without some preliminary study of the law from its medical rather than its legal aspect, although it is frequently difficult to decide where one leaves off and the other begins. I would state that in this class of cases more than many others the responsibility of determining whether a given condition is a result of an alleged accident or injury rests particularly upon the surgeon for, through his knowledge of the causal relation between trauma and pathology, he is of the greatest service to the referee or commissionr who must make the legal decision. Almost all the claims of this nature appear

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in the workmen's compensation courts. The statutory language covering workmen's compensation is not the same in the different states, but in general the wording has not radically destroyed the fundamental ideas underlying this social and economic legislation. I find that the task of following the intent of the workmen's compensation act and the adjudications thereunder in my own state, New Jersey, is quite considerable without attempting to cover all jurisdictions. My remarks are, therefore, based in the main on the New Jersey workmen's compensation act and the adjudications thereunder, with particular reference to the appellate courts. I would like briefly to point out that the workmen's compensation act is a remedial statute and as such liberally construed. Justice Heher, of the New Jersey Supreme Court, has recently stated. 'It is the well settled rule in this state in aid of interpretation, that the compensation act, grounded as it is under social and economic considerations, is to be liberally construed to effectuate the general legislative policy.' I will first point out that the deputy commissioners and the referees have exclusive jurisdiction over all claims for compensation and that they are not trained in medicine. In all hearings before them they are not bound by the rules of evidence, but in all fairness I must point out that where they have disregarded the fundamental rules of judicial proof in making awards, even though they may have admitted incompetent evidence, they have been reversed by the appellate courts. Their findings must be sustained by competent evidence. The petitioner to be entitled to compensation under the workmen's compensation act must prove a prima facie case, but, on the other hand, the respondent to avoid liability for the injuries complained of, on the ground they resulted from other causes than the accident, has the burden of proof to establish such other causes. The law places the burden of proof upon the petitioner for compensation, and it is not sustained unless evidence preponderates in favor of the tendered hypothesis. There must be a rational inference, i.e., based upon a preponderance of probabilities according to common experience. It is required to be a probable or more probable hypothesis with reference to the possibility of other hypotheses *(Gilbert v. Gilbert Machine Works Inc.*, 122 N. J. Law, 533). Viewing this problem from the lawyers' standpoint, it appears clear to me that there have been relatively few claims of a gastric ulcer originating as a result of a strong blunt force, or the Legislature would have specified certain postulates that the petitioner must satisfy before his claim could be considered valid. As, for example, in the case of hernia. Dr. Fowler has already referred to the postulates that must be satisfied. I suggest that under such a strict interpretation very few cases would be held compensable. A large majority of the claims will be based on the allegation that a pre-existing condition has been greatly aggravated or its course accelerated by injury. In this classification the petitioner if he takes care to build up a sufficient medical record will probably obtain an award and in all likelihood successfully defend it on appeal. Given a good medical record sustained by competent medical testimony, the appellate courts do not lightly disturb awards or decisions they have under review. If one remembers that the workmen's compensation act is remedial and, therefore, to be liberally construed, this result is to be expected. I can conceive of many cases where there may have been a continuous process of ulceration which may have progressed to the point of perforation due to underlying disease or even the case of a traumatic ulcer which might go on to rapid healing. Given the case of a patient with a typical history of ulcer who has sustained a definite injury to the abdomen followed by all the classical symptoms of rupture namely, shock, collapse, severe pain, vomiting and rigid abdomen, it will be difficult to resist a claim based on aggravation. I would say if a patient recovered from operative intervention as, for example, by excision of the ulcer, no permanent disability should be allowed. Not infrequently, however, after operative intervention symptoms become severe and further surgical intervention is necessary. In the event that this is refused a fair proportion of total disability should be allowed. To conclude, I would say that the most important thing from the viewpoint of either the petitioner or the respondent is to place in the record competent medical testimony together with all of the facts

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pertaining to the claim. The reason is that in so many cases that come up for hearing and are reviewed on appeal the referee or the appellate court does not have sufficient information upon which to base a fair decision. Thus we have the result outlined before of the reluctance of the appellate court to disturb a finding of a commissioner because of the lack of information before it."

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Nutrition

Book Review by
ERICH SACHS, M.D.

THE SCIENCE OF NUTRITION, by H. C. SHERMAN, Mitchell Prof. Chemistry, Columbia University. Published by Columbia University Press, N. Y.; 263 pages; price $2.75.

A COMPLETE survey of the science of nutrition, presenting a summary of the nutritional knowledge now available, and a discussion of the human implications of such knowledge is the ambitious scope of this slender volume by an eminent authority in the field of nutrition. It is perhaps the most important and significant book of its kind. Certainly it is unique in that it aims to present the science of nutrition with accuracy and adequacy for the intelligent lay reader having scientific curiosity but no specific training in this science. Although not a popularization, the text is easily read, and the scientific data are enlivened by interesting incidents in the brief history of the science.

The book is divided into two sections. The first nine chapters deal with general aspects of the nutritional process and the more outstanding of the specific nutrients or nutritional factors. This includes a thoroughly scientific exposition of the uses of food in the body, and the nutritional characteristics of the foods per se. These chapters, including the tables of food values given, could well serve as a handbook for guidance in practical nutrition.

In the second half of the book, the author attempts to evaluate our nutritional status, to formulate a nutrition policy which envisions re-education of our populace as to food needs, habits, and budgetary expenditures; a change in the agricultural economy of the nation to provide the foods he believes essential; and a correlation of the nutritional knowledge and resources of the entire world to the end that there may be "good lives for all its people," that there may be a higher standard of health, that the span of life may be lengthened.

The basic scientific principles of the first half of the book are recapitu-

lated and applied to the solution of these problems. The author believes that the American public is not well-fed, but that it is suffering not so much from frank nutritional deficiencies as from "hidden hunger," the failure to buy and to eat the "protective foods." He presents a plan for the improvement of life through nutritional guidance. His theory is that maximum levels of nutritional well-being are attainable only through a much greater intake of calcium than is now generally thought necessary, and that this calcium can best be obtained, both nutritionally and economically, through the wider use of milk and milk products.

Unfortunately, in presenting his nutritional guidance, the author has allowed his prejudices to color his teachings. Certainly his dissertations on the unique value of milk in the dietary, and his inferences as to the relative unimportance of meat, constitute a real bias and detract from the value of this section of the book. True enough, the facts presented are documented by reports of other scientists and are authenticated by the substantiating evidence of laboratory-animal experimentation. But Sherman states "... the dietary should be built around bread and milk," and "as much as half of the needed food calories should be taken in the form of fruits, vegetables, and milk in some form or forms"; it is questionable if this can be done in three meals a day and without the ingestion of too great a bulk to be handled satisfactorily by the human digestive system, whenever the daily caloric requirement is high.

In the final chapter, "Scientific Critique of the 'Offer' of Higher Health and Longer Life," startling possibilities are suggested through optimal nutrition based on a milk-centered diet. Heredity and environment are the determining factors in producing longevity; environment includes internal environment which can, by controlled nutrition carried on pre-natally and throughout life, be so altered as to produce the ultimate in health and longevity. Longevity is given a dual interpretation—increased span of years, or primarily an increased span of adult life attained by early maturity and sustained health, increasing the span of useful years.

These principles have been evolved from rat experimentation.

It is of questionable value to translate results obtained by rat experimentation into terms of human applicability. Even if the rat were an ideal "metabolic double" of man, it must be kept in mind that human nutrition has more than a metabolic significance. One can compare the metabolic fate of carbohydrates, e.g., the process of absorption and excretion in the rat and in man, for there is the common denominator of mammalian physiology and biochemistry. Food, however, is more than the nutriments contained. As soon as it enters the human sphere, it is no longer merely a factor in the physiologic process, e.g., simple nutrition, but becomes an element in the complex pattern of biology, individual and group psychology, sociology, etc. Other elements in the pattern such as physical and mental work, relaxation, etc., may be either synergistic with or antagonistic to the effects of better nutrition.

Rat experiments—like all animal experiments—are of greatest value in so far as they suggest possibilities to be considered in the human, but they do not lend themselves to direct human translation.

The author states, "Everything herein contained is strictly scientific finding or interpretation, as distinguished from anything speculative or into which wishful thinking might enter."

Certainly, the basis of Sherman's experiments is strictly scientific. This does not imply that the application of the scientific truths is also necessarily scientific. The application of scientific facts such as feeding experiments on rats involves principles which by their very nature are beyond the realm of the scientific facts which form their basis, or better, their runway.

One can whole-heartedly agree with the author that the science of nutrition should be applied to the betterment of human society, yet one may disagree as to certain special aspects of the problem.

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The burn from the aqueous solution of hydrofluoric acid may not be felt until an hour or more after exposure, but the burn from anhydrous hydrofluoric acid is felt immediately. The length of time elapsing after exposure, before the burn is felt, depends upon the concentration of the acid. If the exposure is for a short time, a minute or so, to a low concentration, or momentarily to a high concentration, a blanched white slightly edematous macerated appearing area of skin is seen. If the exposure is for a long period to a low concentration or for a minute or so to a high concentration, the skin appears red and turns to a greyish purple with considerable edema and tension.

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Prepared by Division of Industrial Hygiene, National Institute of Health, in consultation with medical and technical personnel of manufacturers of this acid.

First Aid

WORKERS who have had hydrofluoric acid in contact with the skin should immediately step under a drenching shower and immediately remove all the clothes, and then receive medical attention as quickly as possible. If the eye is affected it should be copiously flushed with water as soon as possible. If it is anticipated that 20 minutes or longer will elapse before medical attention is received, then apply to the burned area a wet dressing consisting of 20% magnesium oxide in glycerin or a magnesium oxide-sulfate paste.

General Treatment

IF IT IS KNOWN that the acid only touched a localized site, such as the hand or arm, it should be immersed in running water for three to four hours, the triple dyes applied and over this a dressing with magnesium oxide paste.

Calcium gluconate 10% should be injected as soon as possible into, under, and around the burn to prevent spreading and to relieve pain.

The periphery and base of small ulcers should be injected with the gluconate solution and the base curetted and treated with the triple dyes.

If the nails are painful, swollen and discolored, a local anesthetic should be injected at a considerable distance from the inflamed area and the nail opened down to the matrix. This relieves the pressure and pain. A portion of the nail is cut away, calcium gluconate injected into the matrix, the triple dye applied, and the part dressed with the magnesium oxide paste dressing.

Nasal ulceration should be treated by gently wiping away the crusts and generally keeping the nasal mucosa clean. It can be prevented or kept from progressing by proper exhaust vents over operations, by wearing suitable respirators, and by the insertion of petroleum jelly into the nose.

If the eye is burned, it should be washed every five minutes with physiologic saline solution until the physician arrives. Severe pain may be alleviated by instilling a drop of local anesthetic into the eye (avoid cocaine if possible). If the cornea is also affected and there is photophobia a drop of a 1% solution of atropine may also be instilled. It is advisable to put an occlusion dressing over the eye which may be removed later on and followed by dark glasses.

Workers handling hydrofluoric acid should be provided with necessary safety appliances including long heavy neoprene gloves which should be washed daily inside and out with water and allowed to dry in the air.

Workers should be educated as to the hazards of hydrofluoric acid and the necessity of prompt medical attention to burns from it because prompt attention markedly reduces the severity of burns from hydrofluoric acid.

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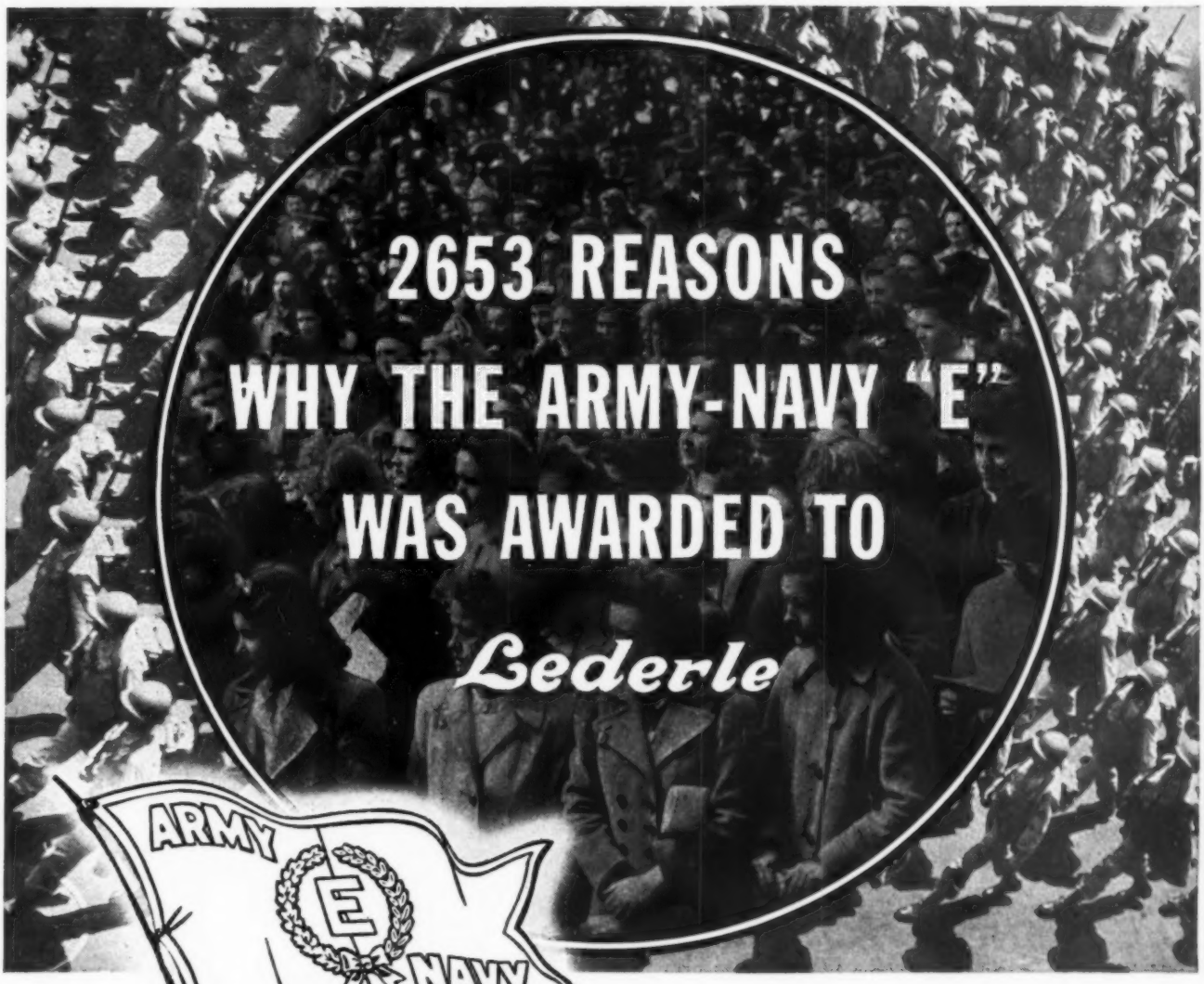
From the Section on Orthopedic Surgery, Mayo Clinic, Rochester, Minnesota. Read before the Special Institute on Industrial Health, Iowa State Department of Health, Waterloo, Iowa, September 23, 1941. Published in *Minnesota Medicine*, August, 1943.



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The private physician now finds his paper work increasing and much of his time taken up with detailed reports to insurance companies, compensation boards, attorneys and other agencies. The management of industrial injuries demands that he take a careful history of the circumstances of the accident and record the physical findings, the diagnosis and the treatment employed, and that he obtain a satisfactory result with a minimal loss of time. Will his records stand inspection when he is called upon to produce them?

In my experience at the Mayo Clinic during the past 30 years I have encountered an increasing number of patients who came to the clinic because of an injury or disease which they attributed to factors that permit compensation benefits. In some instances the patient may have made the rounds of local physicians and some of the patients may have been seen by physicians of nationally known institutions or have consulted famous specialists and may still have been dissatisfied with the diagnosis and opinion which have been given. Many of them seek a diagnosis and opinion that will permit them to collect compensation. The longer compensation is paid and the greater the amount received the better satisfied the patient will be and the more cordial he will be to the physician. On the other hand, should the physician, after an honest and painstaking examination, express an adverse opinion and the patient fail to obtain financial benefits, another conclusion may be reached. Some dissatisfied patients who seek compensation vilify the doctor and refuse to compensate him for his conscientious work, and a common recourse is to threaten him with legal action. In rare instances, an angered patient has resorted to physical attack and even murder; two physicians of my acquaintance, who actually favored the petitioner's demands have been fatally shot by patients who thought that the physicians were responsible for their loss of compensation.

The relationship of the physician to the injured industrial worker is an important subject, the discussion of which would take more time than that allotted to me. In my work, I have made it a practice to treat all patients alike. The injured industrial worker is given every courtesy and as complete an examination as does any other patient. I try to be friendly and get acquainted with him and take time to listen to his story. I record the salient facts in chronological order and make careful notes of the date and place of the accident and witnesses to it, of the previous care, of the name of the employer, and other possible facts that may be pertinent from a compensation-insurance angle. I ask the patient why he came to the clinic and who sent him, as his attending physician or an attorney often is responsible and desires a report of the findings following completion of our examination, which they hope may throw some light on a baffling situation. Before the physical examination has been started, I usually tell the patient that the findings may or may not help his claim and that any report that I make will give the honest facts and he must not expect anything else. Frequently the answer is, "Doctor, I came here because I want to get well and I do not expect anything that I am not entitled to." Thus, I have started with a definite understanding and usually have the cooperation of the patient during the rest of the examination. Naturally, one meets malingerers and mental types of patients. In spite of my best efforts I often find it difficult or impossible to satisfy such patients.

Following the general physical examination and the recording of the history and the physical findings, laboratory tests, including urinalysis and examination of the blood as indicated, are carried out. Frequently the patient's condition is such that further consultation with other specialists is required. In such instances it is advantageous to have consultants quickly available. The effect of such consultation impresses the industrial worker as he realizes that he is receiving an impartial examination. After he has been informed about his condition, the findings are sent to his physician and employer. Thus, when the findings are discussed with him he feels confident of the truthfulness of the diagnosis and the etiologic factors involved; no longer can he say the company surgeon was biased in his decision. After the summary of the findings and the rendering of an opinion which fails to meet the patient's desires, I frequently have been impressed by the friendly spirit with which he receives the decision. I believe that this is largely the result of the physician's attitude toward the patient; some physicians emanate a spirit of antagonism the moment a legal or compensation patient enters their presence and once the patient becomes aware of this he responds in a like manner with the result that both parties fail to come to an amicable understanding. The physician who wishes to carry on successful relations with the employer and employee must, above all things, maintain a reputation for honest, impartial and scientific practice.

In the majority of industrial accidents the employer demands that the physician give an opinion as to the extent of the patient's injuries. Insurance or compensation factors frequently may complicate the picture and require further correspondence or even necessitate legal hearings, all of which are time-consuming. Oftentimes that which appears unnecessary red tape to the physician is in reality of paramount importance to the employer, to the insurance company or to the compensation board. The physician who has a complete record of the case, including the history, physical findings, the treatment instituted and the result, usually has little difficulty in meeting the requirements or demands for information in case of litigation. On the other hand, the physician who may have given the most skillful care and obtained satisfactory result may be left open to criticism and embarrassment when his records prove to be inaccurate or inadequate. It is obvious that all histories should be filed by name and number so that they may be readily produced together with roentgenograms.

Employers who pay for the medical care of industrial patients have a right to the cooperation of the attending physician in that their employees receive skillful care and be returned to work within a reasonable healing period. In some instances the patient, after recovering from his initial fear and pain, may find his income from compensation, insurance and so forth, so satisfactory and his leisure so enjoyable that he tries to postpone the day of his return to work. Every physician has met this type of individual who intentionally or unintentionally becomes a malingerer. In some instances the patient may be influenced by well-meaning friends or attorneys, and the physician who encourages such action soon may lose the respect of all persons concerned and his practice may suffer as a result. When a patient begins to show evidence of intentionally prolonging his disability, it has been my practice to tell him frankly that he should return to his work and that he will gain more financially, mentally and physically by so doing. Compensation boards and juries usually decide favorably where there is reasonable doubt as to the disability of the industrial worker. This may account for an increase in the number of such cases seen during the past few years. The employer pays through insurance premiums for the employee's protection as provided by law; therefore, both the employer and the employee should be protected from needless litigation. Unless there is cooperation by both parties, litigation and increased premium rates would reach such a magnitude that the employer would be threatened with bankruptcy and the employee with loss of employment.

The physician's role, his records and his opinion obviously play a vital part in the settlement of all questions involving industrial injuries. When he does his part honorably and well he commands the respect of all parties concerned.

What are some of the important factors one must take into consideration in the treatment of industrial accidents? Time is probably the most important factor in the treatment of the wound as immediate and adequate care may prevent infection in the majority of cases. The injured person must report to his foreman at once. A sterile dressing should be applied to the wounds and medical care should be made available within an hour or two. Most wounds are contaminated at the start and early cleansing with large quantities of soap and water aided by cotton, gauze or brush, as the occasion demands, is all that is needed to obtain healing by primary intention or rapid granulation. I am not opposed to the use of antiseptics following the cleansing and drying of

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Wars usually are accompanied by an increase in *Pediculosis,* a condition produced by head lice and crab lice. This condition also may become prevalent among war production workers in crowded factories and communities.

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wounds; in fact, I frequently use them. I believe that soap and adequate irrigation are more important than the use of antiseptics. Too much stress is laid upon the application of antiseptics and not enough on thorough cleansing. Certain techniques advocated in the care of wounds have as their basis primary thorough cleansing. Soap and water are practically always available and easy to use. I am not condemning dakinization, Orr treatment or the use of sulfonamides as I frequently employ these excellent types of treatment when in my opinion I believe it is impossible to cleanse a wound thoroughly. In those cases in which crushed, soiled and devitalized tissue is present, thorough debridement should be carried out until living healthy tissue is reached. When in doubt, the wound should be left open and packed or drained by means of soft flat rubber drains, which prevent formation of pockets and clots. I prefer to use an alcohol dressing following suturing of a wound as it permits oozing along the suture line. The blood is absorbed deeply into the gauze and is less liable to cause irritation than in a mass of blood which accumulates and causes maceration. If the edges of the skin are soiled they should be excised; I feel that this region is frequently the point at which infection occurs. I use tincture of iodine or merthiolate in preparing the skin for operation and also for application to dried cleansed fresh wounds.

A recent report by Dr. H. S. Dolan, presented before the American Association for Surgery of Trauma, is of interest. He reported 3,400 cases in which puncture wounds of the foot were caused by nails while men had been cleaning out the bed of an old canal. None of these patients was given tetanus antitoxin and tetanus did not develop in any of the cases. Every injured man was sent to his foreman, who applied a clean dry dressing to the wound and sent the injured man to the surgeon, who excised the skin edges, inserted iodine or some other antiseptic and applied a dry dressing. Dolan emphasized the fact that the nails had pushed in the skin and had sealed the wound so that the deep part could not drain. I have a personal communication from an industrial surgeon who said: "there are 8,000 to 10,000 accidental wounds in this plant during a year, which include quite a number of puncture wounds of the hands and feet, and we have not had a case of tetanus in 25 years; tetanus antitoxin is used only in cases of wounds sustained on the street, stable or where contamination by equine excreta is a possibility. We never use gas serum and I can only recall one case of gas infection which occurred in a rather serious injury some days after hospitalization." I believe that this is not an unusual experience among surgeons who have the opportunity of caring for wounds immediately. The cases I see are those in which the patients report for medical care hours or days following injury. In such cases infection has already taken place. It is too late to expect cleansing and debridement to prevent prolonged disability and it is necessary to resort to the use of antitoxin, sulfonamides and operative treatment. In cases in which infection is evident but not localized, I prefer to place the patient at rest in bed and apply, continuously, packs that have been soaked in a warm mixture of equal parts of 95% alcohol and saturated solution of boric acid. A soft nutritious diet and an abundance of fluids are indicated. The sulfonamide drugs should be administered to the point of intolerance in cases of severe infection. As soon as the infection becomes localized, adequate drainage should be established. Sulfathiazole should be employed in cases of staphylococcic infection and sulfanilamide should be employed in cases of streptococcic infection.* In cases of septicemia in which the proper drug is administered in adequate doses, the recovery rate is now as high as 70 to 75%. Regardless of whether wounds are or are not associated with fracture, the local application of the sulfonamide drugs has proved encouraging in the prophylactic and curative treatment of infection. Usually the wound is dusted with 7 gm. of dry powder or is irrigated with an 0.8% solution.

Time will not permit a consideration of fractures but I would like to mention a few points in this connection. In all cases in which an injury of the bone is suspected, anteroposterior and lateral roentgenograms should be made. Each roentgenogram should be marked by a permanent method so that it will be possible at any time to determine with certainty (1) the date on which the roentgenogram was made, (2) the case number and name of the patient, (3) the situation of the bone, that is right or left, and (4) the name of the roentgenologist. Other roentgenograms should be made at various periods after reduction of the fracture. Such roentgenograms not only protect the surgeon but enable him to detect slipping of the fragments and the progress of union.

There is no substitute for surgical judgment. In each case of fracture one must consider the relative value of operative and nonoperative treatment. It can be said, however, that the majority of fractures can be treated successfully by conservative methods. Too much stress has been laid upon the postoperative roentgenologic appearance of fracture and not enough upon the functional result. The tendency to convert a closed fracture into an open one has in many instances resulted in a catastrophe and permanent disability. The mature surgeon, working in the best surgical hospital environment and endowed with natural skill, may obtain far better results than those obtained by a physician who attempts to operate in a less favorable environment. Whenever a closed fracture can be reduced properly and fixed without impairment of circulation (vascular supply) or nerves, it is wise to avoid open reduction. Operation should be employed for certain types of fractures. In certain cases one may anticiplate difficulty of reduction and the development of complications. In such cases, undue periods of disability might arise if conservative treatment were employed.

A compound fracture should be cleansed with meticulous care. It is advisable to remove small loose fragments which have been displaced; then the fracture should be reduced. Unless the surgeon feels confident of the cleansing of the wound, it is advisable to apply sulfonamides, institute drainage, employ the Orr treatment or dakinization. It is essential that the injured parts should be placed at absolute rest following cleansing and debridement. I use plaster of Paris padded with gauze and sterilized wool bandage and I usually immobilize the neighboring joints. Colles' fractures are usually splinted with a plaster dorsal splint, and the elbow and fingers are permitted to function. In the treatment of fractures of the neck of the femur the value of nailing has been definitely established and this is now recognized as the quickest and most efficient method of treatment. Fractures about the elbow require the constant attention of the physician and the nursing staff in order to prevent interference of circulation in the forearm and the dreaded complication of Volkmann's ischemic contracture.

In the limited time available, it is obviously impossible to consider many of the problems which confront the physician in the management of industrial injuries.

SUMMARY: Good will and a definite understanding with the industrial worker will facilitate the management of industrial injuries. Accurate records are essential; these should be preserved and should be readily available at any time. Physical and laboratory examinations often lead to unrecognized conditions that have an important bearing on the healing period. The record of treatment carried out, its results, and a follow-up report, whenever possible, are of importance in determining the extent of disability and in settling claims for compensation. The cooperation of the employer, employee and physician is essential.

The health of the industrial worker is more important than financial compensation.

*Penicillin has now proved invaluable in staphylococcic infections and septicemia.

A.P.H.A. Meeting

THE Wartime Conference and the Seventy-second Annual Business Meeting of the American Public Health Association will be held in New York City, October 12-14. The Hotel Pennsylvania will be headquarters. Health workers within easy access of New York City are invited to attend. Representation of distant areas will be provided by individual appointed delegates.

For Better Nutrition

The widespread publicity given nutrition during the recent past has produced many erroneous notions in the minds of workers who desire the benefits that accrue from more complete satisfaction of metabolic requirements. In consequence many preparations which are not indicated or needed are consumed in the false hope of self-improvement.

An increasing number of industrial physicians are turning to New Improved Ovaltine when a dietary supplement appears indicated. This delicious food drink was designed to augment the intake of virtually all nutritional requirements, and not merely that of vitamins or of minerals. It provides biologically adequate proteins, essential minerals, and vitamins A, D, and those of the B complex. It also supplies readily utilized caloric food energy. Thus Ovaltine is a valuable aid in bringing the average dietary to optimum levels; two or three glassfuls daily accomplish this purpose pleasantly and conveniently. In the interests of preventing fatigue and improving man-hour output, many plants may find it of excellent value to serve Ovaltine during rest periods and the lunch hour. The Wander Company, 360 North Michigan Avenue, Chicago, Illinois.

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FAT	3.15 Gm.	31.5 Gm.	VITAMIN D	405 U.S.P.U.	432 U.S.P.U.
CALCIUM	0.25 Gm.	1.05 Gm.	VITAMIN B_1	300 U.S.P.U.	432 U.S.P.U.
PHOSPHORUS	0.25 Gm.	0.903 Gm.	RIBOFLAVIN	0.25 mg.	1.28 mg.
IRON	10.5 mg.	11.9 mg.	NIACIN	4.95 mg.	7.1 mg.

*Each serving made with 8 oz. milk; based on average reported values for milk.

The Birth of an Industrial Health Service

IT IS NOT exaggerating to say that we have no comprehensive national health service in this country. The history of our medical services has been a large, ungainly, haphazard development with patches of brilliance, patches of gross inefficiency. As each new problem has become urgent, a new service has been established, as in the case of maternity and child welfare, tuberculosis, cancer and venereal disease. Often this service has been established without thought for the facilities already available, with the result that administrators have had the hardest job to link up the new with the old. The quality of the service given varies considerably in different parts of the country, in different parts of the same district and town. The financial arrangements on which it is based are founded on the wrong principle and should be abandoned altogether. Great praise could be given to the work which is achieved in spite of these limitations; but how much more effective that work would be were the limitations removed.

If it is impossible to say that we have a comprehensive national health service in Great Britain, it is equally impossible to say that we have an industrial health service. There are at present 164 full-time and 673 part-time industrial medical officers. There are 3,500 industrial nurses. There are 14 medical inspectors of factories. These figures are revealing when we remember that even before the war we had a total industrial population of about 8,000,000. It is true that the percentage of that population not covered by any specific industrial medical service have their own panel doctors and local hospitals to whom they can turn. But the problems of industrial health are special problems requiring special research, personnel and attention. There is no comparison between the care and facilities available in a company which is able to employ an industrial medical officer and a staff of industrial nurses and that available in a company which has to rely on outside assistance when it can be obtained. When we consider the knowledge that we already possess on industrial health and the extent of the research which has been undertaken into the problems of occupational disease and industrial hazard, it is remarkable that we did not have something which could be called an industrial health service before the war. But we did not, and now in war-time we are hampered in our efforts to improve matters by the acute shortage of trained doctors and nurses. In these circumstances, as in the case of social insurance, we often comfort ourselves by saying that, in spite of these deficiencies, our system is more adequate than that of nearly every other country in the world. That may or may not be true, and in any case it gets us nowhere. What we want to know is whether our system is as good as we can possibly make it.

From *Labour Management*, London.

When the Minister of Labour and National Service opened the Conference on Industrial Health, which was held in April, he said that health was a comprehensive subject which should not be split into curative and preventive departments, nor into pre-war, war-time and post-war stages, and he urged the Conference to interpret industrial health in its widest sense as comprising everything which affected the worker in his environment. In many matters which affect the worker in his environment inside the factory and out, we have made great headway in the past three years, and we have good reason to feel proud of the progress which has been made. But here too a tremendous amount remains to be done. There are many gaps in the statutory and voluntary provisions for safeguarding health which badly need filling in. An example of this was given at the same Conference by Miss Joan Sidey, recently a student member of the Institute and now Assistant Labour Manager at a London factory. Miss Sidey was recently working on the bench in a railway workshop in the London area. She drew the attention of the Conference to the absence of protective legislation affecting railway workers who are not covered by the Factory Acts unless employed in repair and manufacturing shops. She gave examples of 3,000 workers for whom there was no surgery or qualified nursing staff available, of workers servicing underground pumps who had to work long hours standing in water in bad weather. In his summing-up Mr. Bevin promised that he would look into this immediately.

The April Conference was held to launch the new, large and representative Industrial Health Advisory Committee which has been appointed by the Minister of Labour and National Service. At the first meeting of this Committee it was stated that their main object was to "intensify" the work of preventive medicine in the industrial field, and this term of reference should permit them to examine the problem of the provision of an adequate industrial medical service and also the improvement of all the environmental factors which affect the health of the worker. Both these problems are urgent, and it may be wondered why we wait until the fourth year of war to appoint a Committee of this kind. Nevertheless it is excellent that we have one now and we await their work very eagerly.

The Conference itself was held for three main reasons, apart from the launching of the Advisory Committee. Its purpose was to emphasize the vital importance of maintaining and improving the health of workers in factories and offices, to crystallize interest in the whole subject of industrial health, and to secure for the government expert advice and suggestions for future action both during and after the war. It was held at the Caxton Hall, lasted for three days, and was attended by representatives of all branches of the medical profession, all organizations interested in industrial health and representatives of the Dominions and Allied countries. A battery of Ministers and Parliamentary Secretaries attended the opening of the Conference. Some of the speakers were Sir Wilfred Garrett, H.M. Chief Inspector of Factories; Sir Wilson Jameson, Chief Medical Officer to the Ministry of Health; Sir Edward Mellanby, Secretary of the Medical Research Council; Dr. Hill, Chairman of the Central Council for Health Education; Dr. Amor, Deputy Chief Medical Officer to the Ministry of Supply; Lieutenant-Colonel G. S. Parkinson, Dean of the London School of Hygiene and Tropical Medicine. The level of discussion was high. In general, the occasion was an important one.

What emerged from it? In view of that third purpose—"to secure for the government expert advice and suggestions for future action both during and after the war"—it may be of interest to examine some of the main ideas which were expressed. This may show us what immediate problems we have to tackle in attempting to build a proper industrial health service and what may be some good lines of development. It may also show us something of the work which the Industrial Health Advisory Committee will be doing. It must be said first, however, that a great deal of the Conference was recapitulation. There was little in it which was new and original. But perhaps that was not so important. The problems of industrial health at the moment are problems of administration; problems connected with the putting into practical use of the knowledge which we already have; the problem of providing *for everyone in industry* the best industrial health services that we possess.

The principal idea expressed at the Conference was that we must establish a national industrial health service which would be an integral part of the comprehensive national health service which is now under discussion. This national industrial health service will cover all aspects of industrial health—clinical, environmental, educational. It will include greatly increased facilities for research into the causes and prevention of occupational disease. It will involve making existing knowledge on industrial health much more readily available to the industrial community. It will consist of a properly organized national scheme, and not, as it does now, of medical officers and nurses working in isolation in their individual firms, with greater and lesser degrees of cooperation with the doctors and hospitals in their locality, with comparatively little pooling of ideas, personnel and equipment, with different techniques and different standards of achievement. There was some discussion on the question of whether this new national industrial health service would mean that industrial medical officers would be employed by the state. Dr. Hill, of the Central Council for

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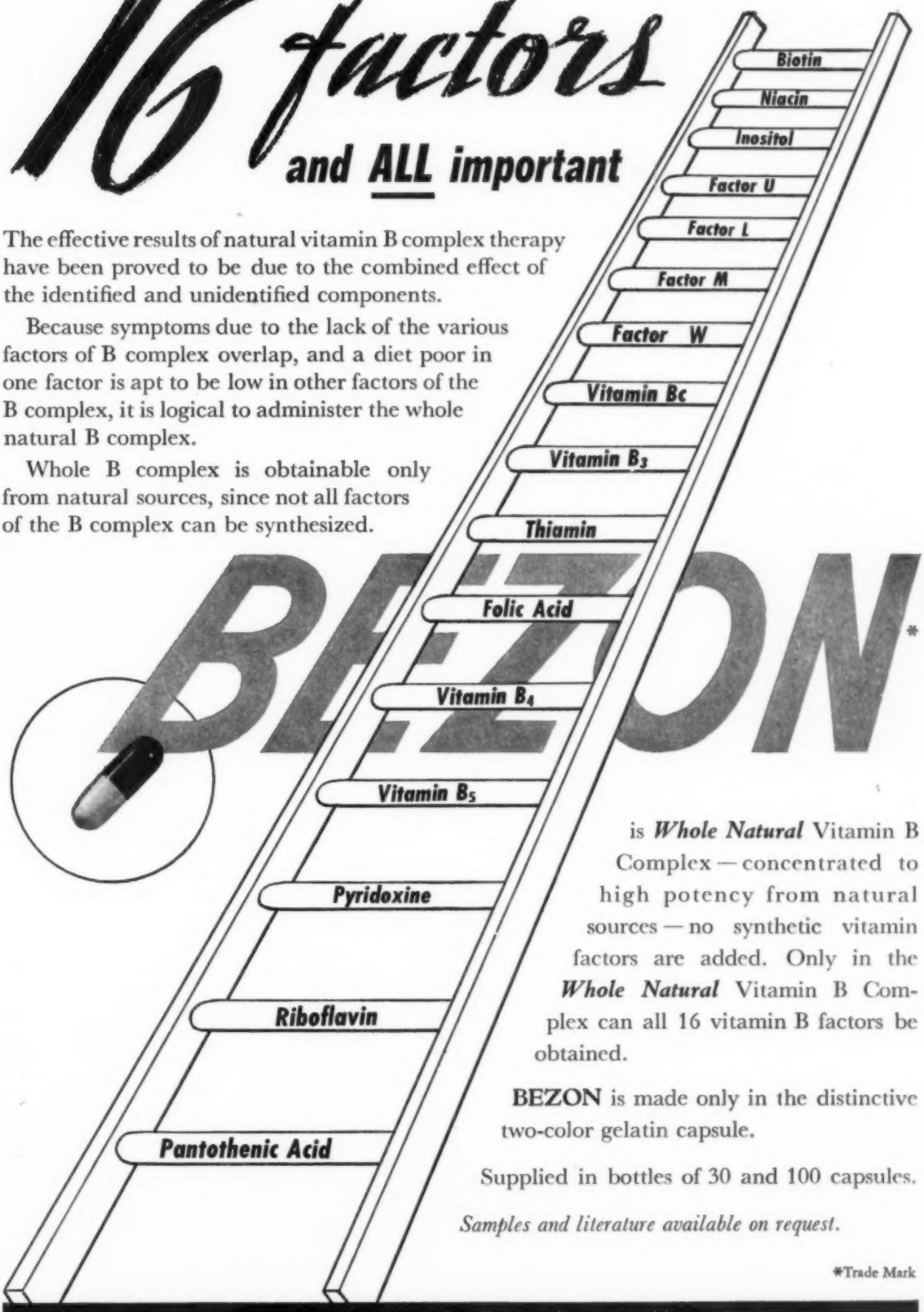

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Health Education, pointed out that today industrial medical officers were appointed by and responsible to the employer, and said that while our industrial medical service remained an employer service, it would remain haphazard, uneven and incomplete. Dr. Blood, of the Association of Industrial Medical Officers, suggested that industrial medical officers should be appointed by and responsible to a joint board representing employers, workers and the Medical Factory Inspectorate. Some speakers defended the present position of the industrial medical officer, pointing out that the fact that he was appointed and paid by an employer did not affect in any way his integrity of purpose or limit the scope of his work. Others expressed the fear that under a national scheme the industrial medical officer might become a civil servant and find his work limited and stultified by bureaucracy. But this is losing sight of the main objective. Few people would question the integrity of industrial medical officers or would not admire the work they do in industry. That does not affect the fact that we need a national industrial health service, just as we need a complete national health service—because it would be more efficient. We need it because it would make available to everyone the skill which is now reserved for the employees of large companies and government undertakings. We should not let a fear of bureaucracy stand in the way of the establishment of a much-needed national scheme.

The establishment of a proper industrial health service in this country will clearly involve the greatly increased employment of a specially trained medical and nursing staff in industry. But for the duration of the war that is out of the question—the personnel is simply not available. Does this mean that we cannot do anything until the war is over or are there steps that we can take to establish an industrial health service right away? Various suggestions were made at the Conference, but the main trend of opinion seems to be this. First we should make a survey of our existing industrial medical services and see whether they are being used to the best advantage. It is certain, for example, that we could make better use of the special skill which we possess by spreading it over a wider area. The practice of employing an industrial medical officer to advise a group of factories could be extended. Some large concerns employ very large staffs of fully-trained industrial nurses. Ideal though this is, we cannot afford to have so much skill concentrated in one area. Small firms who are unable to bear the cost of maintaining a surgery of their own should follow the example of the Cray Valley, where 10 small firms share a surgery between them. Secondly, we could make better use of existing knowledge in the field of industrial health. A number of speakers at the Conference drew attention to the length of time which elapses before the findings of the Industrial Health Research Board are made widely known and put into practice in industry—and a proportion of them are never put into practice at all. We should never let valuable work like this be wasted—reports accumulating on the library shelf unknown to the average factory manager. We must see that this knowledge is spread abroad and made use of. As a means of spreading knowledge, conferences such as the April Conference, meetings, discussions, literature—all have great value. The Association of Industrial Medical Officers propose to publish a journal on industrial medicine, and it is to be hoped very much that they will be able to obtain the necessary paper to do so. Mr. Bevin told the Industrial Health Advisory Committee at their first meeting that the Ministry of Labour was very willing to publish a quarterly Industrial Health Bulletin similar to the Production and Engineering Bulletin, which should be very useful. The Central Council for Health Education is already doing an excellent job in the production of general health literature. Thirdly, the interest and cooperation of the general practitioner must be enlisted to a much greater degree than it is at present. His services are needed to a greater extent as a part-time industrial medical officer. It is essential that his interest should be stimulated in the industrial environment of his patients. It is essential that he and the industrial medical officer should cooperate far more in the diagnosis and treatment of industrial disease, accidents and ailments. Again no one under-estimates the task of the overworked general practitioner and no one can expect him to sit down and study the subject of industrial health at length and spend periods of time getting to know industrial processes. So it must be made easy for him. But nothing can be done unless he is interested, and it is true to say that vast numbers of general practitioners are not faintly interested at the moment. So some speedy education of the medical profession in this matter must be attempted.

There was a third point on which the Conference was unanimous, and it links up with the whole question of the interest of the medical profession in the problems of industrial health. This was the need for the recasting of medical education with much more attention to social medicine and the importance of providing facilities for specialized training in industrial medicine. Part of the final session was devoted to this question and speakers stressed the point again and again. They also stressed how important it was for the industrial medical officer to understand industrial processes and know the working environment of his patients thoroughly. Dr. Amor emphasized this in a very eloquent speech. The human element in industry, he said, was "the field of the infinitely variable" and working environment and its effect on the average man and woman could not be studied from within the walls of a beautiful surgery. The industrial medical officer should put on dungarees and get into the factory, for you can only understand the industrial environment if you have experienced it yourself. There were three things, he said, which the industrial medical officer must do: get to know the processes, get to know the people in the factory, get to know the management.

These were some of the ideas which were expressed in speeches and in conversation at the Conference. There were many more. One very useful contribution was made by Mr. Jack Manning, an engineer and shop steward. Mr. Manning regretted that more workers were not present at the Conference, and said that a great field was open for health education in the factories. The workers were thirsting for sound information on this subject and welcomed anything that was given to them. He urged that there should be maximum cooperation in health matters as well as in matters of production, and he pointed out that a Health Committee could do just as much useful work in its own field as a Joint Production Committee. In the same discussion Dr. Joan McMichael, of Hoover Ltd., also drew attention to the valuable work which was being done by Factory Health Committees. This and all the other ideas which were expressed to constitute "expert advice and suggestions for future action," and we want them to be that and not to remain interesting ideas which are unrelated to fact. At one point during the Conference a speaker got up and said that these "high-sounding statements" were no use unless action was going to be taken. Could we have an assurance that action would be taken? Mr. George Tomlinson, who was taking the chair, replied that the fact that this Conference had been called and the Committee appointed was assurance enough, and the rest was up to us. There is nothing more true than that.

Penicillin

WINTHROP Chemical Company, Inc., announce plans for a "vast increase" in production of penicillin, new highly concentrated extract from common cheese mold which kills bacteria and which has proved to be rapidly curative in such diseases as blood stream infection, osteomyelitis, pneumonia and gonorrhea. . . .

One million units weigh approximately 1/5 ounce. Yet one ounce is sufficient for treatment of many cases of gonorrhea. Sulfonamide-resistant cases of gonorrhea can be cured by as little as 100,000 units of penicillin in two days. Larger doses are usually needed for osteomyelitis and other infections. . . .

Penicillin was discovered by Dr. Alexander Fleming, English scientist, in 1929. Fleming noticed that when an agar plate on which he was growing disease producing bacteria became contaminated with the cheese mold, the germ colonies immediately surrounding the mold were destroyed. He

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Is useful in promoting bile flow.

Loops of a dog's ileum isolated and ready for LIQUID BULK experiment.

Loops of ileum being filled with a laxative solution of Sal Hepatica.

Loops containing Sal Hepatica solution replaced in peritoneal cavity for one hour.*

34 per cent increase in Liquid Bulk of Solution A after one hour.

BIOLOGICAL TESTS SHOW HOW SAL HEPATICA INCREASES LIQUID BULK

Because modern medical men recommend gentle yet thorough relief for constipated patients, Sal Hepatica has achieved an enviable position among saline compounds for its ability to create nonabsorbable *Liquid Bulk* in the costive bowel.

Recent biological tests have conclusively corroborated the production of *Liquid Bulk* in the bowel by Sal Hepatica. *5 cc. of Sal Hepatica (laxative solution) increased 34 per cent in *liquid volume* in an isolated loop of a dog's proximal ileum, in one hour.

Bristol-Myers Company, 19 XX West 50th Street, New York, N. Y.

★ ★ ★

SAL HEPATICA

supplies Liquid Bulk to help Flush the Intestinal Tract

prepared crude extracts of penicillin which he used in growing some delicate bacteria in the laboratory to prevent them from being choked out by hardier, unwanted species, such as staphylococci and streptococci. Penicillin was used in laboratories for this purpose for many years. It was not available for treatment of disease, however, because of the extremely small quantities that could be produced, and also because of the instability of the substance. Then Dr. Rene Dubos, of the Rockefeller Institute for Medical Research, succeeded in producing from soil bacteria a powerful antibacterial substance, called gramicidin, and research workers were given impetus to carry out further investigations of penicillin.

The present interest in penicillin dates from 1939. Important information regarding the chemistry of the extract was obtained in that year, and it was found that the calcium and sodium salts of penicillin are much more stable than the parent substance. The exact structure of penicillin is unknown at present, and until it has been determined, artificial production by synthesis is impossible. However, much has been learned about the "empiric" or general formula, which is stated differently by several investigators. Dr. E. P. Abraham and Dr. E. Chain of Oxford University suggest two formulas for penicillin: Either $C_{21}H_{32}O_{10}N_2$ or $C_{23}H_{30}O_6N_2$. Drs. Karl Meyer, Gladys L. Hobby and Eleanore Chaffee, of Columbia University, suggest $C_{14}H_{19}O_6N$ or $C_{19}H_{17}O_3N$.

Penicillin is probably the most active antibacterial drug known. It completely stops the growth of the pus forming germ known as staphylococcus aureus when penicillin is added in a dilution as high as 1 to 25 million, and partially checks it in a dilution of 1 part to 160 million. It has been found that 1/40 grain of penicillin will protect a mouse from a million fatal doses of hemolytic streptococcus which causes blood stream infection. Penicillin not only stops the growth of bacteria, but it actually kills bacteria. When penicillin can be made on a large scale it promises to replace the sulfonamides for some of the conditions in which they are now used because of the great potency of penicillin and the fact that side-effects have been relatively uncommon. It is very effective when injected into a vein or into a muscle. It is considerably less active when given by mouth, probably because much of it is destroyed in the process of digestion. One other drawback is that it leaves the body very quickly so that doses must be repeated at short intervals. In a hospital, this may be overcome by letting a solution of penicillin drip constantly into a vein. It is now under strict allocation of the War Production Board for national defense and there is no prospect that a surplus will soon be available for civilian use.

NEWS, COMMENT and OPINION

—*Continued from page 594.*

OTIS Elevator Company, Aeronautical Division, Harrison, New Jersey, by operating its own plant cafeterias, serving refresher meals and making shopping easier for employees, has improved employee morale and health conditions. Absenteeism has decreased, lunch business in the neighborhood saloons has dropped considerably, and the medical department has had a sharp drop in intestinal disturbance cases since last September when the management took over feeding operations in the plant.

Census Bureau Health Program

THE U. S. Bureau of Census is located in a Maryland suburb six miles from Capitol Hill, Washington, D. C. Owing to the fact that the census is collected only every 10 years, there is a great fluctuation in employment. During the census period there may be as high as 10,000 employees, but at present only 700 are classified as permanent. Eighty per cent are females and about 65% white persons. On September 1, 1942, Dr. Leon Schwartz, of the U. S. Public Health Service was assigned to the Bureau of Census to organize and conduct a health program. This involves accurate absenteeism records, checked not only by the medical staff but also by home visiting of all ill employees; for the preventive side the medical officer is readily available for medical advice; a program on medical education is conducted, necessary inoculations are given and sanitation of all work places is to be maintained at a high standard. A laboratory and technical service will provide minimum diagnostic facilities, the results of which will be made available to the employees' private physician. Disability occurring during the work day will usually be treated within the emergency room, with opportunities for rest available. Disabilities outside the building are generally referred for treatment to an outside physician. Because of the isolated location of the building it is probable that some therapy will be given at the place of employment.

—*J. A. M. A.*, August 21.

Wish Him Luck

THE psychiatrist is not so different from you, after all. He merely does professionally what you do naturally every time you meet a new person. You "size him up." Many people enjoy just standing on a busy street-corner, looking at people, estimating them. A glance will give an impression; a few words will round it out; close acquaintance adds details. In that way you get to "know" your acquaintances and friends. The psychiatrist does the same thing, in a formal manner, and then tries to put into words "what" the patient IS. As acquaintance ripens into friendship, you begin to understand your friend. You learn that his personality is the natural outgrowth of the type of life he has had, and you therefore tolerate his peculiarities. The second step for the psychiatrist, too, is to try to learn "why" his patient is "what" he is. Out of the detailed autobiography the patient is encouraged to give, the psychiatrist learns facts which teach him tolerance for the most "abnormal" of his patient's idiosyncrasies, and also show him something to like in every patient. Finally, after you understand and like your friend, you are in a position to try to help him modify those personality traits of his which hinder his life-adjustment. Similarly, the psychiatrist, knowing "why," may then know "how" to help the patient change "what" he is. This description of his work would seem to put the psychiatrist in a class with that fellow who wanted to live in a house by the side of the road, and be a "friend of man." Any man courageous enough, or foolish enough, to try thus to understand the peculiarities of all of the rest of us deserves at least that we wish him luck. He'll certainly need it.

—From "Psychiatrists Need Not Be Screwballs," by E.J.A. in *War Doctor*, August.

Signs of the Times

THE daily heading "Strikes at a Glance," above the strike news in a metropolitan newspaper. . . . THE OWI releases—telling of the ingenuity of American workmen in saving time and materials in war manufacturing — mimeographed on cheap paper and mailed in heavy brown manila envelopes. . . . THE inducements listed in Help Wanted ads. Typical: "Two paid rest periods every day. One week paid vacation after six months of service. Two weeks paid vacation after one year of service. Five holidays a year with pay. Christmas bonuses to all employees. Cash prizes for perfect attendance. Automatic wage increases. Uniforms furnished free. Uniforms laundered free. All tools furnished free. Free safety gloves and caps. Free safety goggles. Free legal counseling service. Cafeteria service during rest periods. Hot meals below cost in modern cafeteria. (Example: Large piece of delicious pie and coffee with cream. All for 10c.) Smoking permitted while at work. Game and recreation rooms. Free movies during lunch period. One-half premium paid on group life insurance. One-half premium paid on hospitalization insurance. Complete employees' first aid department. Music while you work. Equipment specially designed for easy operation by women. Beauty shop located in plant. Individual employees' lockers. Modern washrooms and showers. Free bath towels. Central location. Police protection for night workers. Excellent transportation. Membership in athletic and social club."

Earlier Healing

1. Hand of 54-year-old male, showing 2nd degree burn sustained in oil burner explosion.

2. Same hand 10 days later, showing rapid healing as result of daily treatment with White's Vitamin A and D Ointment; complete restoration of function.
(Both photographs unretouched)

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Our Industrial Medical Service Representative will be glad to call on you at your request.

*Hardin, Parker C.: "Cod Liver Oil Therapy of Wounds and Burns," So. Surg. 10:301 (May) 1941.

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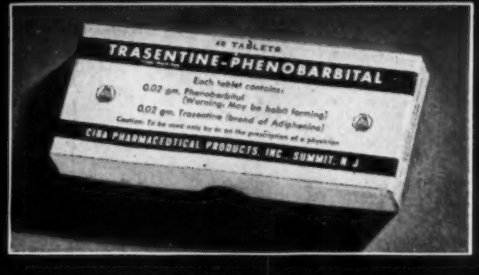
For relief of high nervous tension and myogenic spasm, most American physicians more and more rely upon these well-known, effective antispasmodics as modern circuit breakers . . .

Because **TRASENTINE*** can be depended upon to control continuous spasm of hollow abdominal viscera. It provides benefits of atropine and papaverine but is not so apt to produce undesired side effects of the former, such as dryness of mouth, dilation of pupils, or palpitation.



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